

# Stow Elementary Schools Feasibility Study

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Stow, Massachusetts

## SBA SUBMISSION

**DesignPartnership of Cambridge, Inc.**

Hood Business Park  
500 Rutherford Avenue  
Charlestown, MA 02129

**November 27, 2002**

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Stow, Massachusetts

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This report documents pertinent data, findings, and proposes options, for consideration by the School Building Committee, to address certain issues and conditions relating to the Stow Elementary Schools.

Since October 2002, Design Partnership of Cambridge representatives met with school administrators, school staff, regulatory agencies, and the School Building Committee to ascertain the Stow Elementary Schools projected enrollments, educational program, to translate this program into educational specifications, to develop plan options that will adequately accommodate the educational program, and to determine what impact those options may impose on the educational process as well as the town's fiscal obligations.

Design Partnership of Cambridge gratefully acknowledges the many individuals who participated in the feasibility study process. Their input and feedback contributed greatly to the success of this report.

November 27, 2002

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## Project Team

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The project team consists of the following architectural and consultant firms:

### Architect

#### **Design Partnership of Cambridge, Inc.**

500 Rutherford Avenue  
Charlestown, MA 02129  
(617) 241-9800

### Consultants

#### Demographics/Enrollments

#### **Rickes Associates**

One Westinghouse Plaza, Suite 304  
Boston, MA 02136

#### Structural

#### **DM Berg Consultants, P.C.**

570 Hillside Avenue  
Needham, MA 02494

#### Civil\*

#### **Hamwey Engineering, Inc.**

14 Manning Ave., Suite 308  
Leominster, MA 01453

#### Plumbing & Fire Protection

#### **Fitzemeyer & Tocci, Inc.**

206 West Cummings Park  
Woburn, MA 01801

#### HVAC

#### **Fitzemeyer & Tocci, Inc.**

206 West Cummings Park  
Woburn, MA 01801

#### Electrical

#### **Fitzemeyer & Tocci, Inc.**

206 West Cummings Park  
Woburn, MA 01801

#### Hazardous Materials

#### **Universal Environmental Consultants**

1151 Worcester Road  
Framingham, MA 01701

#### Landscaping

#### **Larson Associates, Inc.**

22 Mill Street  
Arlington, MA 02476

#### Cost Estimating

#### **Essential Design, Inc.**

221 East Main Street  
Milford, MA 01757

*\* Dufresne-Henry provided limited consulting services relative to on-site well requirements.*

## P r e f a c e

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### Rationale

On July 8, 2002, the Town of Stow Public Schools issued a Request for Qualifications: Elementary Schools Feasibility Study (refer to Appendix A-1 for copy). The perceived need for such a study was the result of several converging circumstances and trends, including increasing enrollments and deterioration of existing facilities.

### Goals of the Study

The goals of the Stow Elementary Schools study are well stated by the following excerpt from the Request for Qualifications:

#### Scope of Services

- A. Engage an independent professional consulting firm to develop demographic information and enrollment projections leading to an elementary school enrollment projection for the period of 2003-2013 (ten years).
- B. Meet with the Superintendent or her designees(s) and Principal and staff to develop an educational specification for each school meeting the requirements of the Nashoba Regional School Committee and the Massachusetts Department of Education (SBA).
- C. Perform an existing condition analysis of each building with respect to:
  - 1. Physical condition of each building – structure, interior and exterior materials and finishes, mechanical, electrical, plumbing systems, presence of hazardous materials, etc.
  - 2. Code compliance of each building with respect to state and local building codes for safe egress, detection and alarm systems, indoor air quality, water and septic systems, handicapped accessibility, energy conservation, etc.
  - 3. Condition of the site of each building with respect to well water and septic systems condition and capacity, fire water capacity, utility infrastructure, outdoor playspace, parking and vehicular access, safe loading and unloading of school buses, etc.
  - 4. The degree to which the existing spaces in each school meet the objectives of the Educational Specification and the program goals for elementary programming in the Stow schools.
  - 5. Prepare a site survey of each site with any natural resources boundaries identified.
  - 6. Perform a subsurface exploration at each site for septic and foundation design purposes.

7. Summarize the existing condition analysis in a written report to the Committee.
- D. Based on the above analysis develop conceptual design options as required to meet projected enrollment, respond to the educational specification and program goals and bring the existing schools into compliance with current code standards. Each option is to have all permitting concerns identified. School options may include:
1. Additions and renovations to one or both schools.
  2. New construction alternatives on one or both sites.
  3. New construction alternatives on a new site (to be identified).
  4. Prepare for each of the conceptual options, site, plans, floor plans, massing studies or other graphic exhibits to illustrate the proposed option.
- E. Prepare conceptual project cost budget and total project schedule for each option to include all costs associated with a reimbursable Massachusetts school project to include:
1. Site development and construction costs ("bricks and mortar").
  2. Fees, contingencies and other "overhead" costs.
  3. Furnishings and equipment report and estimate, technology program and costs.
  4. Relocation and phasing costs for work on an occupied site, including modular classrooms if required.
  5. Evaluate each option with respect to meeting educational program goals.
  6. Present options to the Committee and Community at public meetings.
  7. Assist Committee in selected "approved" option for presentation to Town Meetings at future dates to be determined.
- F. Incorporate documentation of above tasks in a Feasibility Study Report (original and ten (10) copies to the Committee.
- G. Submission of the report and necessary documentation to the Massachusetts Department of Education (SBA) to be placed on the waiting list with deferred status.



## Executive Summary

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### Problem Statement

Current circumstances indicate several pressures are affecting the delivery of Pompositticut and Center School educational programs. First and perhaps foremost, the Pompositticut School has become overcrowded, and the Center School is nearing capacity. Pre-kindergarten and pre-kindergarten special education students are placed outside the community due to lack of facilities in Stow; meanwhile student populations continue to increase.

In the last quarter century, sweeping changes in the programs offered (especially the advent of mandated Special Education programs) and in educational delivery systems (e.g. the introduction of technology) have generated the need for significantly more educational space per student. Preferred teaching and learning models such as increased emphasis on interactive group work has also added need for space. In both schools, some classes are now taught in inappropriate spaces and many programs are constrained in their scope and development. Many of the rooms, in particular media centers, art, science, computer labs, administration, nurse, SPED, and remedial classrooms, are too small by Department of Education standards.

Also, despite good levels of maintenance through the years, the schools have inevitably become old and tired. Systems, components and finishes are deteriorated and inefficient, leading to somewhat shabby overall environments. Air quality should be improved with systems that operate properly and meet modern standards. Significantly increased costs for maintaining and, as necessary, upgrading components which are at or beyond the limits of their useful lives should be anticipated in the future. The Pompositticut and Center School facilities are obviously in need of major upgrades to much of its architectural systems and finishes and also its mechanical, plumbing and electrical systems.

Although efforts have been made to provide infrastructure to support current technology programs, the schools have limited power capability to allow the equipment to run. Compliance with current barrier-free regulations, which should be universal, is sporadic. There are substantial hazardous material abatement issues, which must be addressed by any comprehensive renovation of and/or addition to the facilities.

Enrollment projections generated by the project team indicate there will be an upward trend and conservative projections show a K-5 enrollment of 728 by the school year 2013. In combination with the existing tight and overcrowded situations, and considering programs, technology and evolving teaching and learning models; all will undoubtedly create pressure for approximately 30 to 35 percent more classroom space.

## Assumptions

In order to evaluate the various options to address space and infrastructure needs, Design Partnership has analyzed the existing building and site, and compared how each can accommodate the needs defined by the developed educational specification. Certain assumptions have been used to maintain a balance among the possible choices and strategies. The more important of these are listed below.

1. All options are designed to be eligible for inclusion in the Massachusetts School Building Assistance program. The primary requirements for eligibility are rooms of a number and size to meet educational specifications and SBA area guidelines, full code compliance (including 100% barrier-free access) and utilization of materials and systems which can reasonably be presumed to have a 50-year useful life span.
2. Options reusing all or part of the existing facility are designed with minimum compromise of space and/or adjacency, (location) relative to that which is achievable with new construction. Existing construction, systems and finishes are upgraded to be comparable with new construction.
3. All building plan options provide the proper quantity and grouping of spaces to support the educational concepts.
4. In all options, siting of the building respects applicable zoning requirements; wetlands buffer zones, and as far as known, well influence radii. Site boundaries are unchanged. Maximizing safety via site traffic patterns, which separate of car and bus traffic was explored, and 360 degree access around the schools for emergency vehicles maintained. Play areas were maintained or relocated.
5. All options include consideration of phasing and accommodation of students and educational programs during construction.

## Objectives

Through a process of faculty, staff and administration interviews, Design Partnership was informed of the educational program currently in place, as well as new and/or expanded programs that would be desirable if space were available. Specifically, a full day kindergarten program is desired, as well as bringing pre-kindergarten and special education pre-kindergarten back to the community. Kitchen services would be better addressed with a full-service kitchen located at one of the elementary schools.

In a parallel effort, two separate sets of enrollment projections, by Design Partnership and Rickes Associates, were developed and validated. In order to be eligible for State reimbursement, a school project must provide space to

accommodate the anticipated student population 10 years in the future (for the purposes of this study 2013). The projected population curve indicates an increase from the present 529 K-5 students to 728 K-5 students in school year 2013.

For projected numbers of typical classrooms needed, district maximums were used as follows: a maximum of 25 students per classroom for grades 2 through 5, and a maximum of 20 for PreK through 1. This translates to six classrooms per grade for grades 1 through 5, seven classrooms for kindergarten.

After discussion with the Superintendent, it was agreed that the new facility should also be designed to support one additional classroom for pre-kindergarten/special education pre-kindergarten students who are currently placed outside the Stow community due to lack of facilities. If a maximum of 20 students in this grade level is assumed, the total projected Pre-K-5 population is 748 in school year 2013.

The projected need for other educational spaces, such as media center, remedial, special education, computer labs, art, and music was confirmed through discussion with the Superintendent, Principal, and an analysis of existing space as compared with Massachusetts Department of Education (SBA) standards. This has resulted in the provisional educational specifications utilized in determining the space types and square footages used for developing planning options. Educational specifications can be found in Section 6 of this report.

As alluded to previously, options reusing all or part of the existing facility are predicated on the requirement that new and renovated space shall be essentially equal in amenity and longevity. Further, it is a requirement that compromises of room size, room shape and suitable/ideal adjacencies be minimized when utilizing existing construction versus new. SBA guidelines, recommendations and requirements for number and size of spaces are adhered to throughout.

Each option is required to be feasible as regards implementation and phasing, providing for the safe and appropriate housing of the students and the uninterrupted and undiluted continuation of all academic programs.

### Building & Site Planning Options

Initially, to span the minimum and maximum extremes of planning options, Design Partnership investigated the following:

- Option 1: additions and renovations to both schools, Pompo PreK-2, and Center 3-5

- **Option 2:** a new two story PreK through 5 school on the Center School site with the new building near the present building location in the southeast corner of the site (major additions toward the east)

After discussion of these options the School Building Committee requested further development of Options 1 and 2, as well as exploration of the following additional options. These are as follows:

- **Option 1A:** additions and renovations to both schools, Pompo PreK-2, and Center 3-5 with the building additions respecting wetland buffer zones
- **Option 2A:** a new two story PreK through 5 school on the Center School site with the building more compact southeast corner of the site (major additions toward the west)
- **Option 3A:** a new PreK-2 Pompositticut School and additions and renovations to a 2-5 Center School
- **Option 4A:** additions and renovations to both schools, Pompo PreK-1, and Center 2-5
- **Option 5A:** a new two story PreK through 5 school on the Center School site with the building located in the northwest corner of the site, away from the existing building

In a subsequent meeting with the School Building Committee Options 1A and 3A were eliminated due to cost and major site impacts affecting parking, playareas, and vehicular/pedestrian circulation at the Pompositticut. The new PK-5 Center School Option 2A was eliminated due to cost and phasing issues in favor of further pursuit of the new PK-5 Center School Option 5A, which and can be constructed with minimal, or no phasing, due to building location. By housing grades PreK-1 at the Pompositticut site, Option 4A minimizes student population levels as compared with other options, and also, as the least-cost option was deemed worthy of further exploration. The Committee requested the existing stone building be addressed in further development of Options 4A and 5A. Most recent discussions included the following further-refined options:

- **Option 4A.1:** In this option, the existing grade levels attending the Pompositticut are changed from the present K-2 to PreK through 1. This allows renovation with a modest single story classroom wing and administration area expansion, which is desirable due to site constraints. A renovated and expanded Center School would house grades 2 through 5, (currently Center School houses grades 3 - 5), as the Center School site can more easily accommodate a larger expansion.

EXECUTIVE SUMMARY  
OPTION 4A.1  
EASILY ACCOMMODATE  
A LARGER EXPANSION

Precast  
Poured  
\$570,000  
\$26M

- **Option 4A.2:** This option is identical to Option 4A.1 except an existing single story wing at Pompositticut is demolished and replaced by a new two story wing. This allows most of the existing site to be left intact, as compared with Option 4A.1.
- **Option 5A.1:** This option contemplates an entirely new two-story school at the Center School site, housing grades PreK through 5, located in the northwest corner of the buildable site area.
- **Option 5A.2:** This option also explores an entirely new two-story school at the Center School site, housing grades PreK through 5. However the building is located to the west-center of the buildable site area (as compared with Option 5A.1 building location in the northwest corner).
- **Option 5A.3:** This option incorporates the same educational program as Option 5A.1 and 5A.2 above, but with 3 stories.
- **Option 5A.4:** This option also incorporates the same educational program as above, but in a single story.

Of the options presented above, Option 5A.3 was eliminated. Available fire-fighting apparatus cannot adequately reach the upper floor levels (maximum reach is 30 feet). Aesthetic and circulation concerns were considered as well.

Option 5A.4 was also eliminated. It takes up much of the site, leaving less room for appropriate vehicular/pedestrian circulation and play areas. At a population of 748, the single story necessitates lengthy corridors, which would impact student travel time to core facilities.

### Conclusions & Recommendations

Over the course of several decades the present elementary school facilities have served the Stow community well. This is a critical period in the education and maturation of youth; consequently great responsibility is placed on the educators. While the teachers and administrators have consistently been equal to the challenge, the facilities are marginally adequate to support their efforts. Growing enrollments will further exacerbate the situation. An analysis of the physical plants shows without question that the condition is not on a par with most other facilities within the Nashoba Regional School District and deserves substantial upgrading.

Through analysis of existing physical conditions of the building, building systems and sites; enrollment projections and interviews and meetings with faculty and administration concerning program directions and educational requirements, Design Partnership has developed a good understanding of the gap which must be bridged if the facilities are to function in an optimal manner going forward. We have developed the Planning Options described

previously to create facilities which will provide all the necessary amenities to provide the best teaching and the best learning environment possible.

Options 4A.1 and 4A.2 seek to retain as much viable existing space as possible, and thereby reduce new construction costs. It should be noted that, for the most part, only the building shells would remain while other systems such as plumbing, windows, electrical HVAC, roofs, etc are entirely replaced with new. Furthermore, replacing and/or improving infrastructure at two sites rather than one, as well as a longer, phased construction schedule (likely 4+ years), tends to drive up costs and impact the educational environment. Options 4A.1 and .2 have less efficient floor area to circulation ratios as compared to 5A.1 and .2 which results in an overall larger floor areas.

NEW  
BLDG AT  
CENTER

Options 5A.1 and 5A.2 provide entirely new construction, optimize educational space planning opportunities, and make the best use of the site. However, concerns were expressed with a large 748-student elementary school, which current educational models find less than ideal. The Options 5A.1 and .2 mitigate this concern by housing grades PK-2 and 3-5 in separate wings flanking shared core areas.

Cost is very often the chief determinant when considering alternative possibilities for school improvement. The options studied have each been developed to a point where reasonable estimates of project cost can be made (with appropriate contingencies included). As compared with Options 4A.1 and 4A.2, the costs of 5A.1 and .2 are less, due to the reasons explained above. However, if the square footage of 4A.1 and/or 4A.2 can be brought to the same range as 5A.1 or .2 (i.e. 112,000 sf), and other economies achieved, the cost of all four options would be approximately equal.

The overall approximate cost of either Option 4A.1 or .2 is slightly less than \$29,000,000 and 121,000 square feet, whereas 5A.1 or .2 is approximately \$26,700,000 and 112,000 square feet. Option 4A.1 or .2's cost to the Town after State reimbursement is estimated at \$17,751,940. The cost to the Town of Option 5A.1 or .2 is estimated at \$16,050,296 (for more detail, refer to cost estimates section of this report).

The School Building Committee recognized the merits of constructing a new single facility, but desired a further exploration of costs and possible economies which might yet make the two facility add/renovation options equally or more viable.



## Existing Conditions

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### Introduction

The purpose of this section is to identify, relative to the objectives of this study, the physical condition of the existing Pompositticut and Center Elementary School facilities inclusive of sites and to assess how well the existing educational facility supports the day-to-day operation and the short and long term educational goals of the school system.

Any such assessment may be tackled in a number of ways as long as all pertinent data is coherently compiled and analyzed to support the goals listed. As such, Sections 4, 5, 6 and 7 of this report act together to examine what exists in terms of facility and function, to predict how existing facilities will serve in the future, to determine what the foreseeable future may require and how it can best be supplied. Simply, Sections 4 through 7 produce a set of criteria that Section 8 employs to generate and cost estimate site and building options.

Design Partnership representatives and members of the project team performed the process of investigation, evaluation and analysis. Information was obtained from a number of sources including extant construction documents that depict the original 1971 Pompositticut and 1954 Center Schools, and in the case of the Center School, subsequent 1957 and 1964 additions. Although helpful, the information contained in the original construction documents was limited. In particular, the Pompositticut floor plans differed significantly from the as-built building. Much of the bulk of relevant information relating to the physical conditions of the facilities were gathered by members of the project team during thorough visual observation and inspection of the premises, both inside and out. Other sources of information, particularly information that relates to what the facility is purported to house functionally, were meetings and interviews held with school administrators and staff, maintenance personnel and members of certain other town departments. As mentioned previously, Design Partnership gratefully acknowledges the many individuals who participated in the feasibility study process. Their goodwill, input and feedback contributed considerably to the success of this report.

Following this introduction, this section provides a table listing basic data, followed by a general description of the facility's geographical location and a description of the site to an evaluation of the existing physical conditions of the buildings, including engineered systems as well as components, fixtures and finishes. The reports on the various engineered building systems, as issued by members of the project team, are at this point included here rather than in the appendix since the information they contain is directly pertinent to this section. Next, this section assesses how the existing spaces support the educational function for which they are employed. Included are a few case studies describing in more detail the interdependency of space and function, and how one affects the other. Finally, Section 4 ends with supportive data in

the form of existing floor plan drawings and the compilation of the reports on the various building systems and site as issued by the consultant members of the project team.

## Existing Conditions

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### Pompositticut School

#### Overview of Physical Conditions

##### Site

The Pompositticut Elementary School, locally known simply as the Pompo, is located on Great Road about ½ mile west of the town center. The site fronts Great Road on the south, with residential and town properties on the remaining sides. Town owned, according to Planning Board interpretation this site is constrained by the requirements of the Residential District as defined in the Town of Stow Zoning By-laws

The site is approximately 19.2 acres in area and incorporates, besides the school with its necessary access roads, side walks and parking areas, two small paved playareas, and two small grassy playfields used primarily by school, with some community use. The site topography is fairly flat, and contains wetlands toward the north. Upland areas are occupied by the school building and associated vehicular and play areas. Ledge is believed to exist in the area. Primarily due to proximity of wetlands, future building expansion potential is somewhat limited.

##### Building

The present school is comprised of a single story building constructed in 1971. It has a fairly standard masonry bearing wall exterior with a large interior open space framed with steel columns, all supported on concrete foundation. The exterior envelope is completed by masonry-veneer walls and a circa 1980's rubber membrane roof. Except for roofing systems, most materials and systems are original

The facility's engineering systems are operating adequately, but many components are well past their predicted service life and others do not meet present code requirements. Lack of a fire protection system and a limited on-site water supply are of particular concern.

## Pompositticut School

### Physical Conditions

#### Basic Data

Address	Great Road Stow, Massachusetts 01880
Use	Elementary School: serving grades K through 2
Site Area	19.2 acres
Building Footprint	36,415 sqft
Building Floor Area	36,415 sqft
Use Group	E - Educational
Zoning District	Residential District

	Original Building	Additions
Date Built	1971	None
Stories	1	
Foundation	Spread footings	
Structural System	Perimeter masonry bearing walls, steel framed central area and roofs	
Exterior Walls	Brick veneer / CMU backup	
Roofing:	Single ply membrane.	
Window System	Steel	
Exterior Doors	Metal	
Interior Doors	Solid core wood	
Interior Walls	Painted masonry	
Floors	Vinyl asbestos tile, carpet	

Ceilings	Plaster, ACT, exp metal deck
HV	Oil-fired boilers, hot water to unit ventilators and fin-tube radia- tion.
Water	Onsite well w/ 4" main
Fire Service	None
Sewage	Gravity connec- tion to onsite leaching field
Electric	120/208v, 3- phase, 4-wire, 800amp
Gas	One service via NSTAR

## Summary of Existing Architectural Conditions

### 1. Building Code Compliance

#### A. Life Safety Code Issues

##### Egress Doors

The location, quantity, width and capacity of egress doors appears adequate throughout the building. However, numerous barrier-free access issues exist; refer to barrier-free access code issues below.

##### Egress Access Corridors

Due to the "open plan" there are few permanent corridors. The permanent corridor that serves the administration/nurse's areas is a dead-end corridor and does not meet the minimum 6 foot width requirements for a school. Moveable partitions define reasonable egress paths at the perimeter of the central "open-space".

##### Stairs

There are no stairs.

##### Fire Separation

Fire separation between the gym/cafetorium is lacking and should be provided in the form of fire-rated doors.

#### B. Barrier-free Access Code Issues

### Door Size, Clearance and Hardware

Doors have non-compliant latch and lockset hardware, some are too narrow to permit the passage of a wheelchair and many do not have sufficient push/pull clearance beyond the jambs. These doors, frames and hardware should be replaced.

### Thresholds

Exterior door thresholds exceed maximum height allowances.

### Stairs and Handrails

There are no stairs or associated handrails.

### Ramps

There are no ramps.

### Stepped Seating at Amphitheaters

The stepped seating is non-accessible. Current code requirements would include access to some level(s) of the seating.

### Toilet Rooms

1819  
Fixtures do not comply with dimensional requirements. Any comprehensive project must include redesign at all toilet rooms for full compliance and provide new fixtures, fittings, accessories, partitions and finishes.

### Drinking Fountains

There appear to be no barrier-free drinking fountains. Per code, there should be one per 75 occupants.

Site Issues: Refer to landscape architect's report by Larson Associates, contained herein.

## C. Seismic Code Issues

This topic is addressed in the Structural Report contained herein, however, in general the building framing system appears to meet current seismic codes for existing buildings to be renovated. As a component of any comprehensive renovation, the tops of all interior and exterior masonry walls that are not rigidly connected to the floor and/or roof structure, must be restrained.

## 2. Exterior

### A. Walls

Most of the building's exterior wall is brick masonry and most of this is in relatively good condition. There are some areas where building settlement has created minor cracking of the brick veneer. Two win-

dows were cut into the masonry after the original building was completed, and these areas are in need of retooling and/or replacement of selected brick. Original construction documents indicate exterior walls are constructed as a cavity wall system consisting of brick, a 2 inch airspace, 1 inch insulation, and concrete masonry unit backup. This construction conforms to the energy code under the existing building category and has reasonable energy efficiency. However, if significant new work is contemplated additional energy conservation measures should be considered at areas of new construction, such as vapor barriers and/or additional insulation thickness.

#### B. Windows

Windows have steel frames without thermal breaks. Perimeter and internal weatherstripping and caulking are in poor condition. All glass is clear single pane, and not insulated. As such, the window system does not provide any mitigation of energy loss and does not meet present code requirements for new construction.

Building settlement appears to have "racked" some clerestory windows above the central open area. These windows should be repaired and/or replaced.

Windows are original and have been well maintained. Due to their age they are approaching the end of their anticipated useful life, and increased maintenance and/or replacement should be anticipated.

#### C. Window Sills

Exterior brick sills are in good condition.

#### D. Roof

According to custodial staff the original built-up-roofing was removed and replaced with an insulated EPDM system 15 to 20 years ago. The roofing appears to be in fair condition. Although staff interviews confirm there are no major leaking problems at this time, the roofing is near the end of its effective life, and frequent failures and maintenance should be anticipated.

#### E. Gravel Stops and Flashing

Metal gravel stops and flashings are generally in good condition. An area at the main entry has failed flashing where it overlaps a crack in the brick veneer.

#### F. Caulking, Sealants, Control and Expansion Joints

These elements are in poor condition throughout and should be replaced.

### G. Fascias and Trim

Fascias and trim used on this building are predominately of metal construction, and are in fair condition.

## 3. Interior

### A. Floor Construction

Floors are cast-in-place concrete; no deficiencies were observed.

### B. Wall Construction

In general, fixed interior walls are made up of concrete masonry units, with paint finish or applied acoustical panels. These are in sound and serviceable condition.

*6044* The folding partitions which divide the stepped seating amphitheater spaces from the central open area are in fair to poor condition and infrequently serve the purpose for which they were originally intended. Repair, replacement, or elimination should be considered.

The demountable partitions that subdivide the central open area are serviceable.

### C. Ceilings

The ceiling system over the central area is metal deck in need of repainting.

Acoustical panels are hung from the ceiling over the central area. These are in fair to poor condition. Replacement or refurbishing is recommended.

The acoustical tile ceiling in the gym/cafeteria is in poor condition and should be replaced. In other areas ceiling systems consist of painted plaster or acoustical tiles which are in fair condition.

### D. Finishes

#### Flooring

There are two main finish flooring systems, carpet and vinyl asbestos tile (VAT). The carpet is fair to poor and replacement is recommended. If renovations which disturb the VAT are to be performed, permanent abatement of the VAT in accordance with applicable regulations is recommended. Also refer to Asbestos Abatement Report by Universal Environmental Consultants, contained herein.

### Walls

Finishes, mostly paint and acoustical panels, but with some ceramic tile in shower areas and restrooms, are old and tired and should be refurbished or replaced.

### Ceilings

See above.

#### E. Chalk- and Tackboards

These are in fair condition.

#### F. Doors and Hardware

As noted in previous sections latch and lockset hardware and some doors present problems of non-compliance with barrier-free access codes. In addition, exterior metal egress doors are in poor condition and should be replaced.

Interior wood doors are in fair condition. Refurbishing of these doors should be considered when they can also be made to conform with egress and barrier-free code requirements.

### **4. Built-In Furniture and Equipment**

#### A. Casework

Existing casework in art and science rooms is worn and non-compliant with barrier-free requirements. All casework should be replaced with barrier-free compliant units that will perform better and be easier to care for.

#### B. Gym/Cafeteria Storage Closets

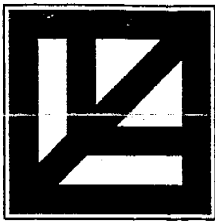
Wood storage closets along the south wall in the gym/cafeteria are worn and in poor condition. Replacement is recommended.

### **5. Cost of Recommended Architectural Renovation Items**

Cost to address life safety/code issues/barrier-free accessibility, replace deteriorating systems (windows, roofs, doors, etc), and bring finishes to as-new condition (i.e. painting, etc). This cost figure does not include new construction.

**\$1,353,443<sup>xx</sup>**

For further detail see attached Base Reno cost backup data contained in the Appendix section of this report.



**LARSON  
ASSOCIATES  
LANDSCAPE  
ARCHITECTS**

**POMPOSITTICUT SCHOOL:  
Existing Site Conditions**

The Pompositticut Elementary School is located on Great Road (Rt. 117) just west of the Town Center. The 19.2 acre site is located near the Town Center and is convenient to all parts of Town. The land area is mostly flat with wetlands and conservation land to the north and west and residential properties to the east. Solar orientation is good for bus arrival and parent drop-off. Utility services (gas, electric, telephone) are available at the site.

The developed land area around the school is used for play areas, parking and traffic circulation. Generally, the condition of the school is well maintained but the facility is over thirty years old and all site features are showing signs of wear and tear. The site has a single entrance off Great Road for all vehicles. Buses use the main loop at the main entrance, parents are directed to a drop off area at the side of the gymnasium area and teachers and visitors use the main parking lot. The main entrance doorway to the building is located a short walk across a concrete plaza just off the bus loop. A bituminous concrete fire lane loops the building and connects to two large circular paved play surfaces in the rear. Two small playfields are carved out the uplands between the resource areas connected by grassed pedestrian ways.

**Service and Utilities:**

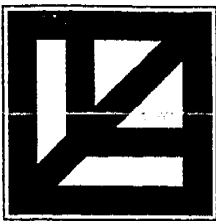
Service (dumpster, steel portable storage container and wood shed) facilities are located on the east side of the building facing the adjacent residential areas. The electrical transformer and the underground oil storage tanks are located here also. A small loading dock (24" high) with access for one vehicle is located on the southeast corner of the building. Potable water is provided by an on-site well located behind the building just off the center hard surface play area. Sanitary waste is handled on site with all facilities (septic tanks, distribution boxes and leaching fields) under the bus loop in front of the building. There are two vents, one located in the flagpole island and the other near the handicap parking.

**Accessibility:**

The school's main entrance is the only accessible entrance. There are 18 doorways that have a step and are not code compliant. The handicap parking spaces are also not to code. The spaces are too far from the main entrance (over 200' feet), striped and signed inappropriately and the accessible route from the handicap parking area requires additional signage, a new curb cut and pavement stripping.

**Landscaping:**

The landscape of the Pompositticut Elementary School is a collection of mature deciduous trees and shrubs, flowers, perennials, annuals and evergreen shrubs. There are 7 large maple street trees along Great Road. A large birch tree at the end of a grassed island signifies entry to



the site. The building entrance and the bus loop island are planted with juniper, azalea, euonymus, dogwood and seasonal plantings. These areas are nicely maintained. The juniper is over grown and blocks the building and should be replaced with more appropriate scale plantings. The lawn areas around the building are well mown but in need of maintenance and repair.

#### **Play Areas/ Athletic Fields:**

The play areas for the school are all located at the rear of the building. These areas are safe and away from all traffic and vehicular circulation. There are three circular play surfaces connected to the building and each other by paved walkways. The bituminous surface is aged and needs replacement. Cracking and heaving will continue to spread and exacerbate an already unsafe situation. One small play fields is located directly adjacent to the play areas and a second, larger field is several hundred feet away connected by a grass path. The closer, small play field is located in a low area subject to flooding and is unusable in the spring. The upper field has been improved recently to alleviate wet conditions. The path to this field is not accessible. There is a play structure with three slides, two horizontal bars and several platforms. The surfacing is a 'fibar' type resilient surfacing which is contained by landscape timbers capped with a recycled plastic timber.

*Stone  
capped timbers*

#### **Traffic, Parking and Vehicular Circulation:**

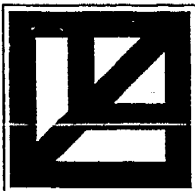
All traffic to the Pompositticut School site enters on a wide two lane driveway from Great Road (Route 117). Buses enter and stage at the front of the school and exit on the same drive. Parents enter the site from Great Road and circle through the parking lot and drop off their children at the sidewalk along the playroom wall. All school personnel and visitors use the same driveway entrance and park in the main lot. There is considerable traffic and congestion at peak morning and afternoon hours. The site has 49 parking spaces and 1 handicap space in the main lot. There is accommodation for 5 buses (in two shifts=10 buses) at the circular drive. Parking is adequate for daily school operations. Parallel parking along the entry drive and in the rear can accommodate overflow parking for 'special' events.

#### **Lighting:**

There is minimal site lighting at the school. There is one flood light mounted on a utility pole near the handicap parking. All other lighting is building mounted.

#### **Site Constraints:**

The property line on the east and immediate north side of the building is very tight and will limit any future development in this area. The land to the west is a bordering vegetated wetlands area connected to a larger wetlands system to the north and west. This property has restrictions due to the wetlands and adjacent buffer zones and the stream and the relating 200' buffer zone. Although some work can take place in previously developed areas (football field) within these buffer zones, the greater majority of this land area cannot be developed. The third 'zone' is the ledge areas to the north of the school and football field. This land can be developed but the cost would be very high.



**LARSON**  
ASSOCIATES  
LANDSCAPE  
ARCHITECTS

22 Mill Street, Suite One  
Arlington, MA 02476  
Phone: (781) 641-2150 x 14  
Fax: (781) 643-9221  
dfisher@larson-associates.com

## WETLANDS REPORT

Sent to:	Keith Hoffses	From:	David Fisher, Larson Associates
Company:	D.P.C.		Richard Kirby, L.E.C.
Address:	500 Rutherford Ave	Project:	Stow Schools Study-Pompositticut School
City/State:	Charlestown, MA 02129	Re:	

I visited the Project Site on Monday October 28, 2002 and met with Rich Kirby (L.E.C.) and Mark Piermarini (Hamwey Engineering, Inc.) to walk the site for wetlands and engineering concerns and comments. We offer the following comments and observations:

### Pompositticut School Site:

1. **Wetlands:** Refer to the attached Sketch Drawing showing the Pompositticut School site. We met at the main parking lot and walked the wetland edge along the west side of the property. The edge is well defined at the base of the steep bank. The wetlands edge is clearly defined as it travels north towards, and then around, the 'lower' soccer field. An east west oriented wetland separates the upper soccer field from the lower soccer field. A small culvert under the access path to the upper field allows water to flow from the adjacent property to the north and the drainage ditch along the eastern edge of the upper field. To the west of the upper field is a large wet meadow. This wetland resource area isolates land owned by the school to the west of the soccer field and makes physical access improbable. The site investigated today has little capacity to carry any more development. The school is currently located on the only solid developable land and the only room for new development (other than small infill additions) is towards Great Road.

**Hamwey Engineering, Inc.**  
**Civil Engineering**

**Pompositticut Elementary School**  
**Existing Utilities Report**  
**November 15, 2002**

Hamwey Engineering, Inc. performed a visual site inspection, reviewed the site plans by Drummey Rosane Anderson Architects dated July 16, 1970, and spoke with the school custodian with regards to the existing utilities.

Site Drainage:

The site drainage consists of a closed drainage system with manholes and catch basins that outlet through a 15" pipe to the west side of the site. Hamwey Engineering, Inc. spoke with Jerry, the school custodian, and he stated that the only drainage problem on site was that the playfields do not drain well. This was the only site related drainage problem according to the custodian.

It is assumed that due to expansion on the site, there will be an increase in drainage flows off of the site. Under the Wetlands Protection Act, it will be required that the pre and post-development flows from the site be maintained at pre-development rates. Also the site is within an Interim Wellhead Protection Area for the school well, therefore an increase in impervious area of more than 15% will result in all additional drainage to be treated and recharged into the ground. To accomplish this, the use of new retention facilities will be required for storm water runoff. Soil testing to determine the recharge capacity of the soil will need to be performed for the retention facility.

Also, as a result of the proposed expansion and site grading, it is assumed that the existing drainage system will have to be upgraded. This will include replacing catch basins, manholes and drainage pipe, and installing structures required for storm water treatment and separation of roof runoff and pavement runoff in accordance with the Department of Environmental Protection Stormwater Management guidelines. Due to these new regulations a new drain system would have to be installed.

It is recommended that a new drainage system be installed and outlet to the west side of the site. New drainage work and grading will be within the 100-foot buffer zone of the wetlands and require a Notice of Intent to be filed with the local conservation commission. Any portions of the drainage system that may be able to remain should be cleaned out. This would include clearing sand and debris from all catch basins and manholes, and flushing debris from drain lines.

#### Site Sewer System:

According to the 1970 Stow Elementary School design plans for the Pompositticut School, the site contains a sewage disposal system with septic tanks, distribution box and leaching facility. The existing school was designed for 510 students at 12 gallons per day per student for a design flow of 6,120 gallons per day. The 1970 design plans show a new 10,000 gallon septic tank, distribution box and two 41'-3" by 39'-0" leaching facilities.

According to the design plans all the sewer lines and manholes carry the sanitary sewerage to a 10,000-gallon septic tank. The sanitary piping is a 6" cast iron soil pipe. The septic tank outlets to the distribution box which equally distributes the effluent to the two disposal fields.

A Title V inspection is required when there is an addition to a building or the flow to the system is being increased and this should be performed prior to the site design process. Upgrades to the site sewer including grease trap, septic tank and sewer lines will most likely be required due to the increase in flows and new Title V requirements.

We can assume the existing septic system has a capacity less than 375 students therefore a new septic system will be required. A new septic system will require soil testing to determine groundwater and soil texture according to Title V regulations. The flow from the school can be determined using the Title V regulations of 8 gallons per day (GPD) per student for an elementary school with cafeteria and gym without showers. The flow for the new student population (375 students x 8 gallons per day per student) will be 3,000 GPD.

Once the flows are calculated then there are three categories to follow for the new septic system design. The three categories are pressure dosing technology for flows from 2,000 GPD to 9,999 GPD, alternative septic system technology (i.e. recirculating sand filter, Bioclere, etc.) for flows between 10,000 GPD and 14,999 GPD, and a wastewater treatment facility for flows over 15,000 GPD. Therefore at a minimum a pressure dosing septic system will be required.

Site Water Distribution System:

During the site visit the existing well was located off the northwest corner of the building. There was no data available on the pump rate of this existing well.

At this time it is unknown if the water distribution system is adequately sized to meet the demands of the proposed student population. However, it is likely that the existing well to the school may need to be upgraded or supplemented by a new well.

A new well or increased pumping capacity of the existing well will require source approval from the Department of Environmental Protection. The approval process may require re-siting the well away from the project area. Depending on the well pump rate criteria, a Zone I radius (100' – 400') is established and nothing may be sited (including driveways, building, play fields, etc.) within this Zone I radius. Also any sewage disposal systems located within the Interim Wellhead Protection Area requires an alternative system design depending on sewage flow rates as stated above under Site Sewer System.

A determination of the well capacity, placement and source approval will be required and should be performed prior to the site design process.

Gas Service:

According to the school custodian there is one gas service from Great Road. The site gas service runs from Great Road to southeast corner of the building. Nstar Gas Company provides gas service to the school.

Nstar Gas Company stated they perform all work required for new services or removal and replacement of existing services. The services performed by the gas company may be back charged to the Town of Stow depending on the amount of additional usage required by the increased school capacity.

Oil Tank:

There is one oil tank off the northeast corner of the building. The oil tank was replaced approximately 5 years ago according to the school custodian.

The existing oil tank will need to be tested to determine if it is in good working order and not leaking into the soil. If the oil tank is within the new building footprint it will have to be removed and replaced. If the oil tank is not in good condition it will need to be replaced with a new tank.

Conclusions:

All of the existing site utilities appear to be in working order. Cleaning of the drainage system is highly recommended. It is also recommended that the existing septic system be inspected per Title V requirements, including soil testing to determine if the existing system is in good working order and determination of the groundwater table.

The increased student population will result in increased sanitary sewerage flows. Title V requires an upgrade of the existing septic system when there is an increase in flow. The increased sanitary flow at the school will require an alternative system. Water demands at the school will also be increased. Upgrades to the well and water distribution system will most likely be required to meet these demands. A new source approval will be required and should be investigated as soon as possible in the design process.

The expansion at the site will create new impervious surfaces and thus, create new storm water flows. These flows will be required to be retained and/or detained on-site. This will require the addition of new closed drainage systems, retention and/or detention facilities and storm water treatment systems.

As a result of the proposed additions and renovations to the existing building, upgrades to site drainage, sewer, water and gas systems will be required. These systems will most likely require some relocation due to the location of proposed building additions and site improvements.

**DM Berg Associates  
Structural Engineers**

November 5, 2002

Mr. Keith Hoffses  
Design Partnership of Cambridge, Inc.  
Hood Office Park  
500 Rutherford Avenue, 2<sup>nd</sup> Floor  
Charlestown, MA 02129

**RE: POMPOSITTICUT ELEMENTARY SCHOOL, STOW, MASSACHUSETTS**

**SUBJECT: FEASIBILITY STUDY**

Dear Keith:

As part of the Feasibility Study, we comment on the relevant structural provisions of 780 CMR 34, which contains the Building Code requirements for repairs, alterations, and additions to existing buildings. We understand that the scope of the project is a variable at this point.

On October 15, 2002, a representative from this office visited the above-referenced School. The purpose of this visit was to perform a cursory, visual investigation of the existing superstructure for the preparation of this 780 CMR 34 study.

Presently, we have formulated our study of the existing building with a Seismic Hazard Category "2". In short, this means that the existing building would not be required to be brought up to the "Code" standards for new construction. Simply: (a) existing structural components and systems that are damaged or decayed would be replaced or repaired; (b) existing structural components and systems that are not "Code" compliant would not be made any worse than they already are; and (c) certain existing seismic hazards would be mitigated. "Not making the building any worse" implies that existing structural components and systems that resist gravity and lateral loads are either not modified or are replicated if modified. "Seismic hazards" generally mean un-braced or un-tied masonry and precast elements, parapets, and chimneys. Mitigating these hazards generally means tying them off to floor and roof diaphragms.

Our intention would be to separate any major additions structurally from the existing building. Minor additions and infills are assumed to be structurally attached, but new, structurally attached floor areas and building masses are assumed not to exceed 10 percent of existing floor area and building mass. This assumption is quite important since increases over 10 percent could draw in some significant seismic retrofit costs.

30000

If minor renovations are done to the Pompositticut School, no seismic upgrades are required. By minor renovation, we mean that the increase in area or weight of the additions is less than 10 percent, occupancy is not increased by more than 25 percent, and total cost of alterations does not exceed 50% of the assessed value of the building.

## I. GENERAL BUILDING DESCRIPTIONS - POMPOSITTICUT SCHOOL

### A. ORIGINAL BUILDING

The original building is a one-story structure, which was constructed around 1971. The building framing system is comprised of steel joists supported on steel beams and columns at the high roof area and steel joists supported on cmu load bearing walls at other areas. Roof decking is mostly tectum plank at the high roof area and steel deck at other areas. The outside façade is comprised of brick veneer supported on the foundation wall.

The structure appears to be in good condition. No sign of major cracking or distress was observed in the structure. Steel lintel angles above the openings were generally in good shape and did not show any sign of rust. Foundation wall below the brick façade showed some minor cracking and some spalling of parging over concrete. There was some sign of water damage at the exterior brick veneer. There were several loose brick courses at the northwest corner of the high roof area above the window. None of the above issues is life threatening or in need of immediate repair.

### B. ADDITION

There appeared to be no addition to the original building, except some new windows that had been installed in the existing exterior walls.

## II. REPAIRS, ALTERATIONS, AND ADDITIONS

### A. SEISMIC-RELATED REQUIREMENTS

1. The Hazard Index for schools (Use Group E) is "4" (Reference Table 3403.0). The proposed change in Hazard Index is zero since there is no proposed change of use.
2. The Seismic Hazard Exposure Group is "2" (Reference Table 1612.2.5) and the Hazard Index is *not* changing from less than "4" to "4" or greater. Therefore, the Seismic Hazard Category (SHC) can be either "1" or "2" (Reference Table 3408.1) depending on: (a) percentage increase in occupancy; or (b) cost of alterations relative to the assessed valuation of the "*building*" to be altered, (i.e., not the entire property). Since the occupancy could be increased by more than 25 percent and since it is more than likely that the total cost of the alterations would exceed 50 percent of the assessed valuation of the building to be altered, we chose to formulate this study with an SHC of "2", not "1".
3. For SHC equals 2 (Reference 3408.5.4.4):
  - a. Alterations cannot be made to existing elements or systems that contribute to the lateral load resistance of the building, which would reduce their capacity to resist lateral loads unless the reduction is compensated by new elements or systems of equivalent strength and stiffness (Reference 3408.3.5). For the Stow Schools, the existing lateral load resisting elements and systems are: (a) masonry walls; and (b) roof diaphragms. This requirement applies to SHC of 1 as well.

- b. Special existing earthquake hazards must be mitigated (Reference 3408.6.3). Existing parapets must be removed, braced, or reinforced. Existing masonry walls must be tied to the floor or roof diaphragms. This requirement would not apply to SHC 1.
- 4. The new major floor areas would, in all likelihood, be framed "structurally separate" from the existing building structure. However, for additions not structurally separate (Reference 3408.4.3.2), the seismic requirements vary depending upon the percent increase in gross floor area and seismic mass (weight) as follows:
  - a. If both the area and weight increases are less than 10 percent, then the only requirement is conformance with 780 CMR 3408.3.5 (as described previously in paragraph II.A.3.a).
  - b. If either the area or weight is increased by 10 percent or more, but neither is increased by more than 100 percent, then the structure must be designed for a percentage of the base earthquake force to be calculated in accordance with 3408.6.1.1 and Figure 3408.1. The percentage of the base earthquake force varies linearly from 40 percent at an area or weight increase of 10 percent to 100 percent at an area or weight increase of 70 percent.
  - c. If either the area or weight is increased by more than 100 percent, then the structure in its entirety must conform to the requirements of 780 CMR for new construction.

## **B. WIND-RELATED REQUIREMENTS**

- 1. Again, where the new major floor areas would in all likelihood be framed "structurally separate" from the existing building structure, the effects due to wind on the existing building would not be altered since the "wind-sail area" would not be increased. In this case, a lateral force resisting system must be in place (i.e., the existing system, a retrofitted system, or a completely new system) for the "structure-as-a-whole" that satisfies 780 CMR 1611.0 for new construction, except the Wind Exposure Category can be reduced to "A" (Reference 3408.5.3). (Note: The term "structure-as-a-whole" in 780 CMR is generally interpreted as precluding components, cladding, and local supporting elements.)
- 2. If an option involves expansion of the existing wind-sail area, then a wind analysis must be performed (Reference 3408.4.2.1). If the analysis reveals that the expansion produces wind effects that exceed the capacity of the existing lateral force resisting system by more than 10 percent, then a new lateral force resisting system (i.e., a retrofitted system or a completely new system) must be in place for the "structure-as-a-whole" that satisfies 780 CMR 1611.0 for new construction, using Wind Exposure Category B. If the analysis reveals that the expansion produces wind effects that do not exceed the capacity of the existing lateral force resisting system by more than 10 percent, then only the requirements defined in II.B.1 apply.

**C. GRAVITY LOAD-RELATED REQUIREMENTS**

1. All new structural systems and elements must satisfy 780 CMR for new construction (Reference 3408.3.1).
2. Existing structural systems and components in sound condition may be reused provided that their structural properties are determined by tests or from generally accepted historical records and the structural analyses of the systems and components demonstrates their capacity to satisfy 780 CMR (Reference 3408.3.2). Existing structural systems and components may be repaired or reinforced if need be (Reference 3408.3.3).

**D. GENERAL REQUIREMENTS**

1. Prior to repair, alteration, addition, and change of use, a structural engineering evaluation must be performed on the existing building to determine the adequacy of the existing structural systems and components that are affected by the repairs, alterations, and additions. The evaluation must include review of original design documents that are available, field investigations, and structural analyses. The evaluation may require detailed field surveys and sampling and testing of in-situ materials. A report of the structural evaluation must be submitted to the building official with the application for a building permit (References 3402.1.1 and 3408.2).
2. During construction, conventional construction administration services by the Structural Engineer of Record would be required as defined by 780 CMR 1 and 780 CMR 17. Additionally, any assumed conditions on which the structural designs and analyses were based must be verified in the field during construction. If the assumed conditions are altered in a way detrimental to public safety, then the structural design must be redefined and the building official must be notified (Reference 3408.2.3).
3. Prior to repair, alteration, addition, and change of use, geotechnical explorations and analyses must be performed to evaluate the soil-supporting conditions and the foundations for the lateral load analyses required by 780 CMR 3408.3.4 and for the liquefaction analyses required by 780 CMR 3408.7 (Reference 3408.2.4).
4. The application for a building permit must identify all items which, in whole or in part, do not conform with the structural provisions of 780 CMR and all proposed "Compliance Alternatives" for approval by the building official. Proposed Compliance Alternatives, if any, must also be submitted to the BBRS together with copies of the building permit and the building official's decision regarding the proposed Compliance Alternatives (References 3402.1.3 and 3402.1.5).

**E. SECOND FLOOR ADDITION OPTION**

A second floor addition will increase the area and weight of the building by 100 percent or more, which will require full compliance with the new code. Foundation system in both schools and the few columns in Pompositticut School can support the additional loads provided that reinforcing and adjustments are provided. The roof decking needs to be replaced, and the roof framing needs to be reinforced or replaced. We do not see any structural benefit in adding another level on top of the existing one-story school buildings. It will cost more to strengthen/replace/revise the existing structures for a second floor addition than to add another adjacent building or replace the existing ones.

If you have any questions or require additional information, please do not hesitate to call.

Sincerely,

**DM BERG CONSULTANTS, P.C.**

Ali R. Borojerdi, P.E.  
Vice President

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**Building System Survey  
Pompositticut School  
Stow, MA  
October 18, 2002  
F&T Project No. 02089.00**

**1. Building Summary**

The Pompositticut Elementary School is a single-story building of approximately 36,415 SF constructed in 1971 as an "open-plan" school. It contains the following rooms: gymnasium/cafeterium; administrative area (including reception, offices, conference, work room, and storage rooms); a large open "media center", surrounded by 9 classrooms, specialty classrooms/tutorial spaces; and a kindergarten wing.

**2. Plumbing**

**a. Existing Plumbing System Evaluation**

1. Presently, the plumbing systems serving the building are sanitary waste and vent, cold water, hot water, storm drainage and natural gas.
2. The sanitary waste and vent system collects waste from the plumbing fixtures throughout the building and flows out of the building by gravity at one location to a on-site septic system. Sump pump in the boiler room serves floor drains and pumps up to the gravity system.
3. The cold water system service, a 4-inch main, comes into the building at one location, via a exterior well pump and passes through pumps, a pressure reducing station and storage tank and distributes throughout the building. Equipment is old and not efficient.
4. The hot water system originates from a 50 gallon gas-fired water heater located in the boiler room.
5. The storm water drainage system collects storm water from roof drains, collecting it in the crawlspace and basement spaces and directing it out of the building by gravity at several points.



6. The natural gas system serves the water heater and emergency generator and is metered in a storage room adjacent to the boiler room.
7. Staff share two single-user toilet rooms, both located across from the library. The Nurse's area has an adjacent single-user toilet room. There are 3 clusters of boy's and girl's toilet rooms, consisting of the following fixture counts:
  - Total girl's water closets: 9
  - Total girl's lavs: 6
  - Total boy's water closets: 3
  - Total boy's urinals: 6
  - Total boy's lavs: 6

**b. Assessment**

1. Condition – The piping on all systems appears to be in good condition. Plumbing fixtures are in fair to good condition, but are old and non-code compliant. The water heater appears to be in good condition. Due to water conditions, all water service valves are in poor condition.
2. Adequacy – All systems appear to be adequately sized for their present respective service.
3. Code Compliance – All systems appear to be code compliant, with the following exceptions:
  - Vacuum breakers are not installed on some service sink faucets and outside wall hydrants.
  - Lavatories do not have metering faucets, flow control devices, and they are not operating at 105 degrees F.
  - Toilets are not of the 1.6 GPF (gallons per flush) type.
4. Cost Effectiveness – All plumbing systems appear to be cost effective for their use, with the exception of toilet flushometers and metering/flow restrictors at lavatory sinks.
5. There are inadequate quantities of toilet facilities for the staff.

**c. Recommendations:**

1. Install vacuum breakers on all service sink faucets and outside wall hydrants.
2. Replace all water closets, urinals and lavatories with code compliant fixtures.



3. Install a new independent cold water line with lead free solder joints to serve kitchen equipment, drinking fountains and classroom sinks equipped with bubblers. This work is not required for Code compliance unless the building undergoes a major renovation; in any case, periodic water testing should continue to ensure that the water is safe for human consumption.
4. Replace all water service valves with new ball valves.
5. Replace existing water booster pumps and storage tank with new booster pump and storage tank equipment.

**d. Estimated Cost of Recommendations: \$76,250**

Item 1 - \$250.

Item 2 - \$25,000.

Item 3 - \$12,000.

Item 4 - \$10,000.

Item 5 - \$25,000.

Item 6 - \$4,000.

*What is Item 6?*

**3. Fire Protection**

**a. Existing Fire Protection System Evaluation**

1. Presently, the building is not protected with an automatic sprinkler system.

**b. Recommendations**

1. Install a complete automatic wet-type sprinkler system throughout the entire building, protecting all spaces. The new system would include a 500 GPM diesel fire pump and a 40,000 gallon buried sprinkler water storage tank.

**c. Estimated Cost of Recommendations: \$160,000**

*(Wet type sprinkler system throughout building, including storage tank and fire pump.)*

**4. Heating, Ventilation, and Air-conditioning (HVAC)**

**a. Existing Heating, Ventilation and Air-conditioning (HVAC) System Evaluation**

1. The Boiler plant was replaced approximately five (5) years ago: it currently consists of Hydrotherm Multi-temp modular hot water boilers with oil-fired burners. The



underground fuel oil tank was replaced when the boilers were replaced; it is code-compliant, with secondary containment and leak detection. The boiler flues were replaced within the last year. The hot water heating distribution pumps are (2) Armstrong base-mounted end suction type; they appear to be original to the building (1971). The hot water mains in the boiler room were replaced in 1995; the remainder of the hot water piping in the building is original to the building. All of the equipment replaced in 1995 appeared to be in good condition. The pumps are nearing the end of their expected service lives, and should be replaced as part of any renovation.

2. Automatic temperature controls were Robertshaw, pneumatic controls. All controls components except boiler controls appeared to be original to the building. The control air compressor had its heads rebuilt within the last five years, but it runs for excessively long periods. While controls components are being replaced on an ongoing basis, the system is well past its expected service life and will require continuous maintenance to maintain relatively low levels of reliability. See below for additional information.
3. The Office Area, Media Center, Entry Lobby, and Playroom/Lunch area are served by a multi-zone heating/ventilating unit with a hot water preheat coil. This unit is located in the boiler room, and provides heating & ventilating to the areas above via sheetmetal ducts. Supplemental and nighttime heating in these areas is provided by terminal heating equipment, such as fin-tube radiators and unit heaters. One of the zone dampers for this unit is missing the actuator and linkage. The unit is original to the building, and was in poor condition.
4. Classrooms located around the perimeter of the main Classroom building are heated and ventilated by floor-mounted unit ventilators with hot water heating coils. Each of these unit vents is controlled by a separate room thermostat. These units were in very poor condition: some damper actuators were sticking, one unit could not be started, and there were missing or inoperative controls in most units.
5. The Kindergarten wing is served by (2) floor-mounted unit ventilators with hot water coils; supplemental/nighttime heat is provided by fin-tube radiation. This equipment is original to the building, and is in very poor operating condition.
6. Teachers' offices located along the building perimeter are heated by fin-tube radiation.

**b. Assessment**

1. The central boiler plant is in good condition. The fuel oil tank and associated controls are in good condition. All other HVAC piping, sheetmetal, controls, and equipment in the building are well past their expected service lives and are in poor condition.



2. Code-required ventilation is not provided to the Teacher's offices located around the building perimeter. Depending upon occupancy levels, Unit Ventilator outside air intakes may need to be enlarged (and Unit Ventilators replaced) to provide Code-required ventilation airflow quantities to perimeter Classrooms.

**c. Recommendations**

With the exception of the central boiler plant and fuel oil system, all HVAC piping, sheetmetal, controls, and equipment should be replaced as part of any renovation or reuse of this building.

**d. Estimated Cost of Recommendations: \$828,000**

**5. Electrical**

**a. Existing Electrical System Evaluation**

1. The utility company serving the school is Hudson Light and Power. The utility service to the building is underground. The electric service to the building is 208/120volt, 800amp, 3 phase, 4 wire. The electrical service entrance equipment and branch circuit panelboards located throughout the building appear to be in fair condition. This equipment is original to the building.
2. The emergency generator has a natural gas fired engine and is original to the building.
3. The Fire Alarm Control Panel is a new addressable system and was installed approximately 2 years ago. The initiating circuits appear to be original to the building and are tied into the new control panel via monitoring modules. Manual pull stations appear to have been replaced or upgraded on an as needed basis. Heat detectors are used for general coverage and are original to the building. Audio/Visual devices appear to have been upgraded to conform to ADA requirements. The remote annunciator in the main entry area is also part of the new system.
4. Normal Lighting is generally supplied via 120 volt fluorescent fixtures. Light fixtures are recessed or surface mounted and have acrylic lenses. Exit signs are a mixture of original incandescent and newer fluorescent types.
5. Emergency lighting is provided by large incandescent fixtures which are connected to the emergency generator.



6. The existing Simplex Model 2351 master clock system appears to be maintaining the proper time at all clocks observed. Other capabilities the system may have were not observed.
7. There have been designated areas for computer usage established.

**b. Assessment**

**1. Condition**

- The electrical service entrance equipment, branch circuit panelboards and branch circuit wiring located throughout the building have reached the end of their useful life service life. After 30 years the insulation properties on conductors has deteriorated and terminations of conductors loosen due to constant heating and cooling. This causes excessive heating at these points. Contacts in switches, motor starters and circuit breakers become corroded which causes this equipment to be over heated. Circuit breakers can also fail to trip due to faulty tripping mechanisms or contacts being welded in place.
- The generator appears to have been well maintained and has minimal hours on it for it's time in service. The radiator exhaust and fresh air intake utilize the same motor operated damper. This could impair the efficiency of the motor and output of the generator.
- The Fire Alarm Control Panel and Remote Annunciator are in good condition. It is assumed that proper testing was performed on initiating devices that are original to the building when the new control panel was installed. Any fire alarm wiring that is original to the building would be subject to the same deterioration process as previously stated for branch circuit conductors.
- The normal lighting and exit signs are generally in poor condition. The lenses on general light fixtures are cracked and discolored due to aging, this decreases the light output of the fixture.
- The emergency lighting fixtures are sporadically located throughout the building. The fixtures contain relatively high wattage lamps and are not very appealing. Actual condition of the fixtures could not be determined without starting the generator.
- The Simplex master clock system appears to be in good condition. Other capabilities the system may have were not observed making it not possible to comment on the complete operation of the system.



- Data wiring designated for computer usage appears to have been installed on a piecemeal basis. There are data wires hanging from ceilings and loosely run along floors and across desk/tabletop areas.

## 2. Adequacy

- The electrical service size to the building is questionable. The addition of any new mechanical systems for ventilation or air conditioning would require the need for an upgrade in service size. Copies of utility bills for the past 12 months would help determine if the service size is currently acceptable for the building as it exists.
- The emergency generator appears to have been well maintained and has minimal hours on it for it's time in service (611 hours logged). A load bank test would need to be performed to determine if the generator is capable of maintaining the output power rating.
- The Fire Alarm Control Panel is adequate for the facility as it exists. The panel is capable of supporting replacement of new initiation and indicating circuits. The addition of any additional control requirements for mechanical systems would have to be reviewed.
- Normal lighting level for general areas is fairly adequate. Lighting levels and the quality of light in the Library and computer areas are poor.
- Actual adequacy of emergency lighting could not be determined, although fixtures are sporadically located.
- The Simplex master clock system would require additional research to determine its actual limitations if intended to serve a renovated school.

## 3. Code Compliance

- The electrical distribution systems were code compliant at the time of construction. There are some locations where electrical equipment clearances do not meet current code requirements.
- Present fire alarm codes require smoke detectors in common spaces as well as storage and equipment rooms.

## 4. Cost Effectiveness ?



UEC

October 17, 2002

RECEIVED

OCT 18 2002

T.D.P.C. INC.

Mr. Keith Hoffses  
Design Partnership of Cambridge  
500 Rutherford Avenue  
Charlestown, MA 02129

Reference: Renovation and Demolition Project  
Pompositticut and Center Schools, Stow, MA

Dear Mr. Hoffses:

Thank you for the opportunity for Universal Environmental Consultants (UEC) to provide professional services.

The following observations were made during the site visit conducted on Tuesday, October 15, 2002 to review Asbestos Containing Materials (ACM) and other hazardous materials at the Pompositticut and Center Schools, Stow, MA.

**Pompositticut School:**

- It appears that all ACM have been removed from the boiler room
- ACM pipe and hard joint insulation was assumed to exist above ceilings
- 12"x 12" Vinyl floor tile and mastic were assumed to contain asbestos
- Window/door framing and glazing caulking was assumed to contain asbestos
- Blackboard and glue were assumed to contain asbestos
- According to the School maintenance person, the underground oil tank was replaced
- According to the School maintenance person, the roof was replaced
- Ballasts in light fixtures were assumed to contain PCB's.
- Tubes in light fixtures were assumed to contain mercury.

**Center School:**

- It appears that all most of the ACM have been removed from the boiler room. However, boiler insulation was assumed to contain asbestos
- Insulation inside old boiler was assumed to contain asbestos
- ACM pipe and hard joint insulation was assumed to exist above ceilings, attic and in crawl spaces
- 9"x 9" Vinyl floor tile and mastic were assumed to contain asbestos
- Window framing and glazing caulking was assumed to contain asbestos
- Glue daub on 1'x 1' ceiling tile was assumed to contain asbestos
- Blackboard and glue were assumed to contain asbestos
- Roofing material was assumed to contain asbestos

Universal Environmental Consultants  
1151 Worcester Rd  
Framingham, MA 01701  
Tel: (508) 628-5486  
Fax: (508) 628-5488

Mr. Keith Hoffses

October 17, 2002

Page 2

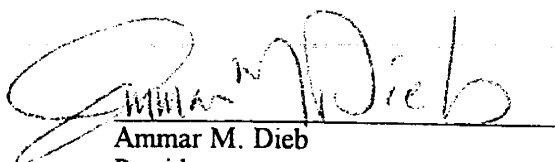
- According to the School maintenance person, the underground oil tank was replaced
- Ballasts in light fixtures were assumed to contain PCB's.
- Tubes in light fixtures were assumed to contain mercury.

A complete comprehensive inspection is needed prior to providing <sup>✓</sup>cost estimates for hazardous material abatement. *See attached for preliminary estimate.* *detailed*

Please do not hesitate to call me at (508) 628-5486 if you have questions.

Very truly yours,

Universal Environmental Consultants



Ammar M. Dieb  
President

UEC:\smallprojects\DPCStow.DOC

# UEC

October 24, 2002

OCT 25 2002

Mr. Keith Hoffses  
Design Partnership of Cambridge  
500 Rutherford Avenue  
Charlestown, MA 02129

Reference: Renovation and Demolition Project  
Pompositticut and Center Schools, Stow, MA

Dear Mr. Hoffses:

Thank you for the opportunity for Universal Environmental Consultants (UEC) to provide professional services.

Below please find cost estimates for hazardous materials abatement at the Pompositticut and Center Schools, Stow, MA. The cost estimates are based on visual inspection of the Schools and information provided in the AHERA Management Plans.

The cost estimates include removal and disposal of accessible asbestos containing materials (ACM) and an allowance for removal of inaccessible or hidden ACM that may be found during the renovation project. The cost estimates also include the removal of windows (putty assumed to contain asbestos), vinyl floor tile (mastic assumed to contain asbestos) and demolition of the boilers (ACM may be found inside the boilers).

Lead abatement is not required. However, OSHA regulations must be implemented during renovation.

Roofing material is not required to be removed by a licensed asbestos contractor. However, OSHA and DEP regulations must be implemented during renovation.

Type of Material	Estimated Cost
------------------	----------------

**Pompositticut School:**

Vinyl Floor Tile and Mastic	\$ 120,000.00
Pipe and Hard Joint Insulation	\$ 10,000.00
Windows and Doors	\$ 25,000.00
Blackboard and Glue	\$ 5,000.00
Misc. and Hidden Asbestos	\$ 20,000.00
Light Fixtures/PCB's Ballasts	\$ 10,000.00
Engineering Fees	\$ 30,000.00

**Total:** \$ 220,000.00

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Framingham, MA 01701  
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Mr. Keith Hoffses

October 24, 2002

Page 2

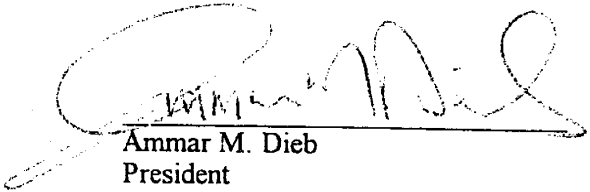
**Center School:**

Vinyl Floor Tile and Mastic	\$	120,000.00
Pipe and Hard Joint Insulation	\$	15,000.00
Windows and Doors	\$	25,000.00
Blackboard and Glue	\$	5,000.00
Misc. and Hidden Asbestos	\$	20,000.00
Ceiling Tile Glue Daub	\$	10,000.00
Boiler Demolition	\$	10,000.00
Light Fixtures/PCB's Ballasts	\$	10,000.00
Engineering Fees	\$	35,000.00
<b>Total:</b>	<b>\$</b>	<b>250,000.00</b>

Please do not hesitate to call me at (508) 628-5486 if you have questions.

Very truly yours,

Universal Environmental Consultants



Ammar M. Dieb  
President

UEC:\smallprojects\DPCStowCost

## Existing Conditions

---

### Center School

#### Overview of Physical Conditions

##### Site

The Center Elementary School, is located on Great Road about 1/4 mile west of the town center. Until 1954, the site was known as the Larson Farm, at which time the property was purchased by the town. The site fronts Great Road on the south, with residential and town properties on the remaining sides. Town owned, according to Planning Board interpretation this site is constrained by the requirements of the Residential District as defined in the Town of Stow Zoning By-laws.

The site is approximately 15 acres in area and incorporates, besides the school with its necessary access roads, side walks and parking areas, two tennis courts and playfields containing softball, baseball, and two overlapping soccer fields used primarily by school, with some community use. The southern portion of the site is fairly flat, and contains wetlands toward the north. Upland areas are occupied by the school building and associated vehicular and play areas. Ledge is believed to exist in the area. Future building expansion would need to take these factors into account.

##### Building

The present school is comprised of a single story building with original construction occurring in 1954. Additions were built in 1957 and 1964.

A stone building was constructed in 1918 as an apple storage barn when the property was the Larson Farm. A wood framed blacksmith shop, in poor condition, was also part of the farm, and still resides on the site. The Historical Commission has determined the stone building and blacksmith shop have significance.

The main school building has a fairly standard masonry bearing wall exterior with flat and pitched roofs framed in wood. With the exception of roofing replacements, most materials and systems are original.

With the exception of electrical, the facility's engineering systems are operating adequately, but many components are well past their predicted service life and others do not meet present code requirements. Lack of a fire protection system and a limited on-site water supply are of particular concern.

## Center School

### Physical Conditions

#### Basic Data

Address	Great Road Stow, Massachusetts 01880
Use	Elementary School: serving grades 3 through 5
Site Area	15 acres
Building Footprint	36,360 sqft
Building Floor Area	36,360 sqft
Use Group	E - Educational
Zoning District	Residential District

	Original Building	Additions
Date Built	1954 (stone building 1918)	1957, 1964
Stories	1	1
Foundation	Spread footings	Spread footings
Structural System	Perimeter masonry bearing walls, wood framed roofs	Perimeter masonry bearing walls, wood framed roofs
Exterior Walls	Brick veneer / CMU backup (stone)	Brick veneer / CMU backup
Roofing:	Single ply membrane / asphalt shingles	Single ply membrane
Window System	Wood/Metal	Wood/Metal
Exterior Doors	Meta/Wood	Meta/Wood
Interior Doors	Solid core wood	Solid core wood
Interior Walls	Painted masonry/drywall	Painted masonry/drywall

Floors	Vinyl asbestos tile, carpet	Vinyl asbestos tile, carpet
Ceilings	Plaster, ACT	Plaster, ACT
HV	Gas-fired boilers, hot water to unit ventilator,s fin-tube radiation, and H/V units	Same
Water	Onsite well w/ 4" main	Same
Fire Service	None	Same
Sewage	Forced main to onsite leaching field	Same
Electric	120/208v, 3-phase, 4-wire	Same
Gas	Two services via NSTAR	Same

## Summary of Existing Architectural Conditions

### 1. Building Code Compliance

#### A. Life Safety Code Issues

##### Egress Doors

The location, quantity, width and capacity of egress doors appear adequate throughout the building. However, most are non-compliant with barrier-free access code (see below).

##### Egress Access Corridors

The width and therefore capacity of egress access passageways appears adequate throughout the building. There are no "dead-end" corridors exceeding code limitations.

##### Stairs

Stairs to the platform in the gym/cafeterium do not comply with current code requirements for width, handrails, and landing dimensional requirements.

##### Fire Separation

Current code requires fire separation between the gym/cafeterium and the remainder of the building. Wall construction appears ade-

quate to achieve this, however doors and frame should be replaced with labeled units.

STAGE

#### Platform Framing

The platform framing is suspected to be wood, which does not meet current code fire-resistance requirements. Replacement should be anticipated as a part of any major renovation project.

### B. Barrier-free Access Code Issues

#### Entries

The formal entrance to the gym/cafetorium is non-accessible, and a ramp or other a code conforming remedy is recommended.

A steep pitch slopes up to the main entry school which exceeds barrier-free requirements.

The stone building entries are non-accessible.

At several other exterior doors the distance to grade also exceeds present day requirements. In those cases grade and slope should be adjusted.

#### Door Size, Clearance and Hardware

All doors have non-compliant hardware, some are too narrow to permit the passage of a wheelchair and many do not have sufficient clearance beyond the jambs. With few exceptions, all doors, frames and hardware should be re-placed.

#### Stairs and Handrails

Stairs in the gym/cafetorium do not permit access to the platform. Clearances, nosings, handrails and dimensional requirements do not meet present codes.

#### Ramps

There are no ramps.

#### Toilet Rooms

With the exception of one marginally compliant single user toilet room in the west wing, all toilet rooms would require major redesign and replacement of fixtures, fittings, accessories, and partitions to comply with current code.

#### Drinking Fountains

Of the few drinking fountains within corridors, none appear to be no barrier-free. The bubblers located at classroom casework sinks are also non-compliant.

Site Issues: Refer to landscape architect's report by Larson Associates, contained herein.

### C. Seismic Code Issues

This topic is addressed in the Structural Report by DM Berg Associates, contained herein, however, in general the building framing system appears to meet current seismic codes for existing buildings to be renovated. As a component of any comprehensive renovation, the tops of all interior and exterior masonry walls that are not rigidly connected to the floor and/or roof structure, must be restrained.

## 2. Exterior

### A. Walls

The main building exterior walls are primarily brick masonry with a concrete masonry unit backup and no insulation or airspace. Wood panels areas above classroom windows are also framed in wood which spans between vertical steel lally columns. For the most part, masonry is in good condition, although repointing of the chimney is recommended. Consideration should be given to either a comprehensive refinish of wood panels, or complete replacement in the future.

The stone building appears to have solid rubble walls of approximately two foot or more thickness. The construction and pointing is in good condition.

Current wall construction conforms to the energy code under the existing building category. However, if significant new work is contemplated additional energy conservation measures may be required, such as vapor barriers, airspace and/or insulation.

### B. Windows

There are both wood and metal framed windows, all clear single pane without thermal breaks. They are in generally poor condition. Perimeter and internal weatherstripping and caulking are also in poor condition or, in some cases, non-existent. As such, the window system does not provide any mitigation of energy loss and does not meet present code requirements. Full window replacement is recommended.

#### Window Sills

Brick rowlock sills are in relatively good condition with the exception of the gym/cafeterium; replacement is recommended at this location.

### C. Roof

According to the building custodian, the flat roofs were replaced with an insulated EPDM system 15 to 20 years ago, and appear to be serviceable. The reroofing improved slopes for positive drainage to roof drains, although rainwater has been known to back up and cause leaks due to undersized roof drain branch piping. Although serviceable for the near term, the roofing is near the end of its effective life, and frequent failures and maintenance should be anticipated.

The entry canopy roof at the main building is in poor condition, and replacement is recommended.

Skylights within the flat roof appear old, but are in fair condition. No leaks were reported at the skylights.

The stone building and gym/cafeterium have pitched roofs with asphalt shingles. The asphalt shingles on the main building are visibly deteriorated, and replacement in the near future is recommended.

#### D. Gravel Stops and Flashing

Copper gutters and downspouts are generally in poor condition. Gravel stops are similarly in a deteriorated state. Replacement is recommended.

#### E. Caulking and Sealants

As a general rule, these components of the building envelope have been replaced and/or repaired over the years only when absolutely necessary and only to the degree necessary to restore their usefulness. Any major renovation project should be the occasion to remove and replace all joint filler material, including backer rods.

#### F. Soffits, Fascias and Trim

Plywood soffits and wood fascias and trim are generally in poor condition. All should be replaced if the building is to be renovated in the next several years. Existing wood trim, if it is appropriate to the design and mission of the renovation could be recovered with new prefinished brake metal.

The wood gable ends at the gym/cafeterium are deteriorated. At a minimum these should receive a comprehensive refinishing program. Wood louvers in the same area are in very poor condition, with replacement recommended.

#### G. Areaways

A concrete walled utility trench connects the main building west wing with the stone building. No problems were reported.

### 3. Interior

#### A. Floor Construction

Floor substrate is cast-in-place concrete, in good condition. No problems were reported.

Floor finishes are typically carpet and vinyl asbestos tile (VAT). The carpet is fair to poor and replacement is recommended. If renovations that disturb the VAT are to be performed, permanent abatement of the VAT in accordance with applicable regulations is recommended. Also refer to Asbestos Abatement Report by Universal Environmental Consultants, contained herein.

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Dark?

Gym/Cafetorium flooring is a non-original "hockey" style flooring in fair condition. Replacement with a more resilient wood or synthetic flooring should be considered. The platform appears to be the original wood flooring which has seen much service. Refurbishment is recommended.

#### B. Wall Construction

In general, interior walls in the main building are made up of painted concrete masonry units, in good condition, with the exception of small amounts of building settlement related cracking. There are limited areas of painted drywall and glazed masonry units, all in fair condition.

The gym/cafetorium has wood paneling, which is in fair to poor condition. Replacement or refurbishment of the paneling is recommended.

The stone building has painted drywall on the interior side of the exterior stone walls, as well as some interior drywall partitions, all of which are in fair condition. Repainting should be considered.

Due to lack of use and condition, consideration should be given to replacement of folding partitions in the main building.

#### C. Ceilings

Ceiling systems are typically either plaster or acoustical tile. Plaster ceilings are in fair condition and should be repainted as a part of an ongoing maintenance plan. Acoustical ceilings, most of which are concealed-spline systems, are in fair to poor condition. In particular the gym/cafetorium ceiling is in poor condition and replacement is recommended. Elsewhere, eventual replacement should be considered due to condition and difficulty of access.

**D. Kitchen**

Kitchen equipment is typically very old and worn. Full replacement is recommended to upgrade the facility to current standards.

**E. Chalk- and Tackboards**

Classroom chalkboards are original, and replacement is recommended as a component of any major renovation. Writing surfaces would likely be specified as marker boards or a combination of marker and chalkboards.

Limited areas of tackboard exist in corridors. These are in fair to poor condition, and eventual replacement is recommended as part of an ongoing maintenance program.

**F. Doors and Hardware**

As noted in previous sections latch and lockset hardware and some doors present problems of non-compliance with barrier-free access codes. In addition, most doors, interior as well as exterior, are in poor operational and physical condition. Replacement of doors, frames, and hardware is recommended.

**4. Built-In Furniture and Equipment**

**A. Classroom Casework**

Existing perimeter casework shows cosmetic and structural damage from decades of hard service, particularly at sinks.

Cubbies are original to the building. They are in poor condition, with limited serviceability. Coathooks are insufficient and/or missing.

The casework is not barrier-free. All casework should be replaced with new units that meet code, are appropriate to function, and easier to care for.

**B. Gym Equipment**

**Basketball Backstops and Goals**

The backstops and goals in the gym/cafeterium are worn out and replacement is recommended.

**C. Platform Curtains and Rigging**

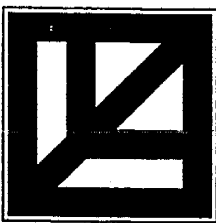
The fire curtain and manilla rope rigging appear to be old, and should be inspected by a professional rigger.

## 5. Cost of Recommended Architectural Renovation Items

Cost to address life safety/code issues/barrier-free accessibility, replace deteriorating systems (windows, roofs, doors, etc), and bring finishes to as-new condition (i.e. painting, etc). This cost figure does not include new construction.

**\$2,163,120**

For further detail see attached Base Reno cost backup data contained in the Appendix section of this report.



**LARSON**  
**ASSOCIATES**  
**LANDSCAPE**  
**ARCHITECTS**

### **CENTER SCHOOL: Existing Site Conditions**

The Center School is located on Great Road (Rt. 117) in the center of Town. The 15 acre site is located near the Town Hall and is adjacent to the Hale School site. The land area around the existing school is relatively flat and is used for parking and traffic circulation. There are residences immediately east and west of the school along Great Road. The Stow Outdoor Classroom uses the wetlands and Clay Pond to the west and north of the school property. The land rises gently to the north and east of the school towards the Hale Middle School and Hartley Road. Utility services (gas, electric, telephone) are available at the site.

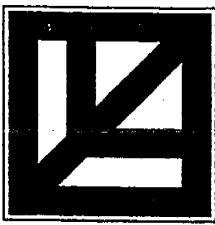
The site has two entrances off Great Road. The eastern drive serves a small parking lot (2 handicap spaces, 5 paved parking spaces, 10 'lawn' spaces) with a one way drive and exit. The loading area for the kitchen is located here. The main entrance is in the center of the site and serves the main entrance, the main parking lot and bus drop/pickup area. The drive loops around a landscape 'commons' area and exits at Great Road. A small play structure is located adjacent to the parking lot and the back of the school. On an upper level area behind the school are the play fields (softball, baseball, two overlapping soccer fields) and two tennis courts. Service is accommodated on the east side of the building with a small loading area. The land to the west is a bordering vegetated wetlands resource area connected to a larger wetlands system to the north and west. The site has a single entrance off Great Road which feeds the bus loop in the center of the site at the main entrance, the main parking lot on the west side of the building, the parent drop off area and a small parking area located at front of the building. The road has a one way exit on the extreme west side of the site on the opposite side of a large common space. The property line on the east side of the building is very tight to the structure. The property line opens to Hartley Road northwest of the school.

### **Service and Utilities:**

Service (dumpster, wood storage shed) facilities are located on the east side of the building facing the adjacent residential area. The electrical transformer and the underground oil storage tanks are located here also. A small loading dock (24" high) with access for one vehicle is located on the east side of the building. Potable water is provided by an on-site well located behind the building just off the center hard surface play area. Sanitary waste is handled on site with septic tanks and pump station located to the east of the building and the leaching fields under the play fields.

### **Accessibility:**

The school's main entrance is the only accessible entrance. There are 18 doorways that have a step and are not code compliant. The handicap parking spaces are also not to code. The spaces are too far from the main entrance (over 200' feet), striped and signed inappropriately and the accessible route from the handicap parking area requires additional signage, a new curb cut and pavement stripping.

**Landscaping:**

The landscape of the Center School is highlighted by the 'commons' area at the center of the main driveway loop. Rock out crops, mature sugar maples and flowering trees cover the lawn area. A small courtyard frames the canopied main entrance of the building. The property lines to the east and west are heavily vegetated and provide a good protection for the neighbors. The remainder of the site is enhanced by it's setting near wetlands highlighted by with red maples. The street trees along Great Road are sugar maples providing a distinctly New England rural feel. The lawn areas around the building are well mown but in need of maintenance and repair.

**Play Areas/ Athletic Fields:**

The play areas for the school are all located at the rear of the building. These areas are safe and fenced off from all traffic and vehicular circulation. There is a large rectangular paved play area next to the play structure which has one circular slide, two horizontal bars and several platforms. The surfacing is a 'fibar' type resilient surfacing contained by landscape timbers capped with a recycled plastic timber. The play fields are located behind and above the school. There is a softball field, baseball field and two overlapping soccer fields. The tennis courts located at the edge of the play fields. The fields are all over used and need of repair or reconstruction. The tennis courts are cracked and have indications of ponding. The fencing is old and needs to be replaced. There is no accessible path to these facilities.

**Traffic, Parking and Vehicular Circulation:**

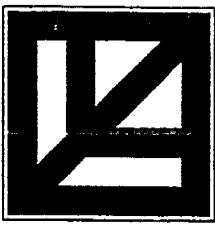
All the buses and visitor traffic to the Center School site enters on a one way driveway from Great Road (Route 117). The drive passes by the main entrance to the school and the auditorium and loops by the parking area. Buses enter and stage at the front of the school and exit on the same drive as parents entering the site to access the parking lot and drop off or pick up their children. Most school personnel and visitors use the same driveway entrance and park in the main lot. There is considerable traffic and congestion at peak morning and afternoon hours. The site has 40 paved parking spaces, 10 dirt parking spaces and 4 designated handicap spaces. There is accommodation for 5 buses (in two shifts=10 buses) at the main drive. Parking is adequate for daily school operations. Parallel parking along the entry drive and in the rear can accommodate overflow parking for 'special' events.

**Lighting:**

There is minimal site lighting at the school. There is one floodlight mounted on a utility pole across the entry drive from the canopied entrance. A second flood light is mounted on a utility pole near the play structure. All other lighting is building mounted.

**Site Constraints:**

The property lines on the east and west side of the building is very tight and will limit any future development in these areas. The land to the north beyond the existing play fields is a bordering vegetated wetlands area connected to a larger wetlands system to the north and west. The land area to the north and east of the school connects directly to the Hale School property behind the Fire



Station. There appear to be some restrictions due to possible wetlands and adjacent buffer zones in this area. Wetlands identification in this area will need to be pursued.

**Site Potential:**

This site has development potentials. The parcel size and adjacency to Hartley Road offer opportunities to expand or build new while redirecting traffic off the heavily traveled Great Road onto the lesser traveled side road. The land on the upper east and north side of the site slopes up and away from the school and will need to be studied and any development designed to work with the slope.



**LARSON**  
ASSOCIATES  
LANDSCAPE  
ARCHITECTS

22 Mill Street, Suite One  
Arlington, MA 02476  
Phone: (781) 641-2150 x 14  
Fax: (781) 643-9221  
dfisher@larson-associates.com

## WETLANDS REPORT

Sent to:	Keith Hoffses	From:	David Fisher, Larson Associates
Company:	D.P.C.		Richard Kirby, L.E.C.
Address:	500 Rutherford Ave	Project:	Stow Schools Study-Center School
City/State:	Charlestown, MA 02129		

I visited the Project Site on Monday October 28, 2002 and met with Rich Kirby (L.E.C.) and Mark Piermarini (Hamwey Engineering, Inc.) to walk the site for wetlands and engineering concerns and comments. We offer the following comments and observations:

### Center School Site:

1. **Wetlands:** Refer to the attached Sketch Drawing showing the Center and the Hale School sites. We met at the gravel parking lot (north of the Fire Station) along Hartley Road and proceeded to canvas the site west of the lot towards the Center School Site. Rich Kirby used a soil auger to help in his interpretation of the limits of wetlands on the site. We found a small resource area (Bordering vegetated Wetlands) approximately 80' to the east of the tennis courts. The area was connected to a drainage ditch parallel to, and about 25' off the tennis courts, draining to the north and then to the west. The drainage system then forms the extreme northern edge of the play fields for the School and eventually drains into Clay Pond at the area known as the Stow Outdoor Classroom. Clay Pond is a small to moderate sized pond with a control structure at its southern end. The water flows over the control structure into a closed system which daylight about 300' to the south behind the baseball backstop. From here, the water flows off site to pond behind the neighboring church. The stream bed at this point was dry and it is believed the stream is not perennial. Initial investigation of Clay Pond indicates that the pond does not likely function as a vernal pool. A small isolated depression just north of parcels 2,3, and 4 appears to be an area that retains water for short periods of time and exhibits some wetland characteristics. These areas were considered extremely borderline and were felt that they would not be under the jurisdiction of the Conservation Commission. The site investigated today has the capacity to carry some development. There is an 'avenue' of land for a possible connection to the Hale School.

**Hamwey Engineering, Inc.  
Civil Engineering**

**Center Elementary School  
Existing Utilities Report  
November 15, 2002**

Hamwey Engineering, Inc. performed a visual site inspection, reviewed the site plan by Kilham, Hopkins, Greeley & Brodie Architects dated January 28, 1964, and spoke with the school custodian with regards to the existing utilities.

**Site Drainage:**

The site drainage consists of a closed drainage system with manholes and catch basins that outlet through a 24" pipe to a drainage ditch to the west side of the site. All of the existing drainage pipe on site is transite (asbestos pipe) and will need to be removed according to standard abatement procedures. Hamwey Engineering, Inc. spoke with Corkey, the school custodian, and he stated that during heavy rains the drainage on the east side of the building ponds. Also the roof drains back up in the building and this could be due to the size of the pipe or the drywells they outlet to may not be recharging water fast enough for the amount of contributing roof runoff. These were the only site related drainage problems according to the custodian.

It is assumed that due to expansion on the site, there will be an increase in drainage flows off of the site. Under the Wetlands Protection Act, it will be required that the pre and post-development flows from the site be maintained at pre-development rates. Also the site is within an Interim Wellhead Protection Area for the school well, therefore an increase in impervious area of more than 15% will result in all additional drainage to be treated and recharged into the ground. To accomplish this, the use of new retention facilities will be required for storm water runoff. Soil testing to determine the recharge capacity of the soil will need to be performed for the retention facility.

Also, as a result of the proposed expansion and site grading, it is assumed that the existing drainage system will have to be upgraded. This will include replacing catch basins, manholes and drainage pipe, and installing structures required for storm water treatment and separation of roof runoff and pavement runoff in accordance with the Department of Environmental Protection Stormwater Management guidelines. Due to these new regulations a new drain system would have to be installed.

It is recommended that a new drainage system be installed and outlet at the same location on the west side of the site. New drainage work and grading will be within the 100-foot buffer zone of the wetlands and require a Notice of Intent to be filed with the local conservation commission. Any portions of the drainage system that may be able to remain should be cleaned out. This would include clearing sand and debris from all catch basins and manholes, and flushing debris from drain lines.

Site Sewer System:

According to the 1957 4-classroom addition design plans for the Center School the site contains a sewage disposal system with septic tanks, pump chamber and leaching facility. In 1957 the existing system contained one septic tank, a pump chamber with a 4" asbestos cement force main to a dosing tank and a distribution manhole that outlets to 1,600 linear feet (LF) of disposal trench. The 4-classroom addition design plans show a new septic tank added that abuts the existing tank and holes were cored in order to connect the septic tanks together, therefore both septic tanks have a combined capacity of 11,369 gallons. Also the plans from 1957 show an additional 1,600 LF of disposal trench added to the existing leaching facility.

According to the design plans all the sewer lines and manholes carry the sanitary sewerage to an 11,369-gallon septic tank. The septic tank outlets to a pump chamber that pumps through a 4" asbestos cement force main to the dosing chamber. The dosing chamber alternates doses to the two 1,600 LF leaching facilities.

A Title V inspection is required when there is an addition to a building or the flow to the system is being increased and this should be performed prior to the site design process. Upgrades to the site sewer including grease trap, septic tank and sewer lines will most likely be required due to the increase in flows and new Title V requirements.

We can assume the existing septic system has a capacity less than 375 students therefore a new septic system will be required. A new septic system will require soil testing to determine groundwater and soil texture according to Title V regulations. The flow from the school can be determined using the Title V regulations of 8 gallons per day (GPD) per student for an elementary school with cafeteria and gym without showers. The flow for the new student population (375 students x 8 GPD per student) will be 3,000 GPD.

*11,369 / 600 = 18.95*  
*18.95 x 375 = 7,106.25*

Once the flows are calculated then there are three categories to follow for the new septic system design. The three categories are pressure dosing technology for flows from 2,000 GPD to 9,999 GPD, alternative septic system technology (i.e. recirculating sand filter, Bioclere, etc.) for flows between 10,000 GPD and 14,999 GPD, and a wastewater treatment facility for flows over 15,000 GPD. Therefore at a minimum a pressure dosing septic system will be required.

#### Site Water Distribution System:

According to maintenance records the existing well located on the lower level of the west wing at the Center School was replaced in August 15, 1983 and was designed to deliver 5 GPM from 284'.

At this time it is unknown if the water distribution system is adequately sized to meet the demands of the proposed student population. However, it is likely that the existing well to the school may need to be upgraded or supplemented by a new well.

A new well or increased pumping capacity of the existing well will require source approval from the Department of Environmental Protection. The approval process may require re-siting the well away from the project area. Depending on the well pump rate criteria, a Zone I radius is established and nothing may be sited (including driveways, building, play fields, etc.) within this Zone I radius. Also any sewage disposal systems located within the Interim Wellhead Protection Area requires an alternative system design depending on sewage flow rates as stated above under Site Sewer System.

A determination of the well capacity, placement and source approval will be required and should be performed prior to the site design process.

#### Gas Service:

According to visual inspection and speaking with the school custodian there are two gas services from Great Road. One small service connection is at the southeast corner of the building and the other main service connection is at the west wing of the building. The site gas main appears to run from Great Road to a small meter at the southeast corner of the school and a large meter on the west wing, where they enter the building. Nstar Gas Company provides gas service to the school.

Nstar Gas Company stated they perform all work required for new services or removal and replacement of existing services. The services performed by the gas company may be back charged to the Town of Stow depending on the amount of additional usage required by the increased school capacity.

Oil Tank:

There are no oil tanks on site. The oil tank was removed approximately 9 years ago according to the school custodian. Investigation may have to be performed to determine if there are any contaminated soils in area.

Conclusions:

All of the existing site utilities appear to be in working order. Cleaning of the drainage system is highly recommended. It is also recommended that the existing septic system be inspected per Title V requirements including soil testing to determine if the existing system is in good working order and determination of the groundwater table.

The increased student population will result in increased sanitary sewerage flows. Title V requires an upgrade of the existing septic system when there is an increase in flow. The increased sanitary flow at the school will require an alternative technology septic system. Water demands at the school will also be increased. Upgrades to the well and water distribution system will most likely be required to meet these demands. A new source approval will be required and should be investigated as soon as possible in the design process.

The expansion at the site will create new impervious surfaces and thus, create new storm water flows. These flows will be required to be retained and/or detained on-site. This will require the addition of new closed drainage systems, retention and/or detention facilities and storm water treatment systems.

As a result of the proposed additions and renovations to the existing building, upgrades to site drainage, sewer, water and gas systems will be required. These systems will most likely require some relocation due to the location of proposed building additions and site improvements.

November 5, 2002

Mr. Keith Hoffses  
Design Partnership of Cambridge, Inc.  
Hood Office Park  
500 Rutherford Avenue, 2<sup>nd</sup> Floor  
Charlestown, MA 02129

**RE: CENTER ELEMENTARY SCHOOL, STOW, MASSACHUSETTS**

**SUBJECT: FEASIBILITY STUDY**

Dear Keith:

As part of the Feasibility Study, we comment on the relevant structural provisions of 780 CMR 34, which contains the Building Code requirements for repairs, alterations, and additions to existing buildings. We understand that the scope of the project is a variable at this point.

On October 15, 2002, a representative from this office visited the above-referenced School. The purpose of this visit was to perform a cursory, visual investigation of the existing superstructure for the preparation of this 780 CMR 34 study. A second visit was made to Center School on October 29, 2002 to obtain more information about the existing building with stone bearing walls.

Presently, we have formulated our study of the existing buildings with a Seismic Hazard Category "2". In short, this means that the existing building would not be required to be brought up to the "Code" standards for new construction. Simply: (a) existing structural components and systems that are damaged or decayed would be replaced or repaired; (b) existing structural components and systems that are not "Code" compliant would not be made any worse than they already are; and (c) certain existing seismic hazards would be mitigated. "Not making the building any worse" implies that existing structural components and systems that resist gravity and lateral loads are either not modified or are replicated if modified. "Seismic hazards" generally mean un-braced or un-tied masonry and precast elements, parapets, and chimneys. Mitigating these hazards generally means tying them off to floor and roof diaphragms.

Our intention would be to separate any major additions structurally from the existing building. Minor additions and infills are assumed to be structurally attached, but new, structurally attached floor areas and building masses are assumed not to exceed 10 percent of existing floor area and building mass. This assumption is quite important since increases over 10 percent could draw in some significant seismic retrofit costs.

If minor renovations are done to the Center School, no seismic upgrades are required. By minor renovation, we mean that the increase in area or weight of the additions is less than 10 percent, occupancy is not increased by more than 25 percent, and total cost of alterations does not exceed 50% of the assessed value of the building.

**DM Berg Associates  
Structural Engineers**

November 5, 2002

Mr. Keith Hoffses  
Design Partnership of Cambridge, Inc.  
Hood Office Park  
500 Rutherford Avenue, 2<sup>nd</sup> Floor  
Charlestown, MA 02129

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## **I. GENERAL BUILDING DESCRIPTIONS – CENTER SCHOOL**

### **A. ORIGINAL BUILDING**

The original building was constructed around 1954 and is a one-story building comprised of a gymnasium/cafeterium with platform and kitchen at the front, some offices and classrooms behind it, and a detached building with stone bearing walls. The gymnasium/cafeterium has an attic space with steel trusses to frame the attic floor and roof. Trusses are supported on the perimeter masonry walls. Classrooms have wood framing and wood decking supported on masonry load bearing walls. The stone building has conventional wood framing at roof and attic levels supported on perimeter stone bearing walls.

Steel trusses above the all-purpose room appear to be in good shape. Some cracks were observed in the masonry walls supporting the trusses. The cracks are minor and do not represent a major structural problem.

We were able to observe the roof structure over the classrooms at couple of locations. Roof framing comprises of wood decking supported on wood joists. Steel beams might have been used in some locations.

There were some cracks observed in the bearing walls at classrooms and at the boiler room. The exterior brick façade had some cracking at several locations, and some separation, especially above the boiler room exterior stairs. Exterior foundation walls showed signs of cracking, settlement, and spalling at several locations. None of these cracks has any immediate structural implication. If there will be no renovation at this time, we recommend monitoring the brick separation above the boiler room exterior stair for any additional movement, and all the exterior cracks for any water leakage.

The stone bearing walls around the stone building are about two feet thick and appear to be in good shape. Roof framing consists of 2x6 rafters at two feet on center framing to the ridge plate. Wood decking frames over the rafters. Attic floor framing consists of 2x6 joists framing to a center beam that is hung from the roof rafters through a 5/8" diameter rod supported on two collar channels bolted to roof rafters every six feet. There are some wood partition walls and columns below the attic level, which could be partially supporting the center beam (depending on the size of the beam). Two layers of T&G wood decking frame over the wood joists and form the attic diaphragm. The wood framing of the roof and attic of the stone building appears to be in good shape.

### **B. ADDITIONS**

There have been two additions to the original building, around 1957 and 1964. The first addition was a four-classroom addition. The second was a six-classroom addition. These additions are one-story buildings attached to the existing classroom wing with the same type of wood framing and some steel beams for the roof.

The same type of cracks as in the original building could be observed in the bearing walls and brick façade of the additions.

## II. REPAIRS, ALTERATIONS, AND ADDITIONS

### **A. SEISMIC-RELATED REQUIREMENTS**

1. The Hazard Index for schools (Use Group E) is "4" (Reference Table 3403.0). The proposed change in Hazard Index is zero since there is no proposed change of use.
2. The Seismic Hazard Exposure Group is "2" (Reference Table 1612.2.5) and the Hazard Index is *not* changing from less than "4" to "4" or greater. Therefore, the Seismic Hazard Category (SHC) can be either "1" or "2" (Reference Table 3408.1) depending on: (a) percentage increase in occupancy; or (b) cost of alterations relative to the assessed valuation of the "*building*" to be altered, (i.e., not the entire property). Since the occupancy could be increased by more than 25 percent and since it is more than likely that the total cost of the alterations would exceed 50 percent of the assessed valuation of the building to be altered, we chose to formulate this study with an SHC of "2", not "1".
3. For SHC equals 2 (Reference 3408.5.4.4):
  - a. Alterations cannot be made to existing elements or systems that contribute to the lateral load resistance of the building, which would reduce their capacity to resist lateral loads unless the reduction is compensated by new elements or systems of equivalent strength and stiffness (Reference 3408.3.5). For the Stow Schools, the existing lateral load resisting elements and systems are: (a) masonry walls; and (b) roof diaphragms. This requirement applies to SHC of 1 as well.
  - b. Special existing earthquake hazards must be mitigated (Reference 3408.6.3). Existing parapets must be removed, braced, or reinforced. Existing masonry walls must be tied to the floor or roof diaphragms. This requirement would not apply to SHC 1.
4. The new major floor areas would, in all likelihood, be framed "structurally separate" from the existing building structure. However, for additions not structurally separate (Reference 3408.4.3.2), the seismic requirements vary depending upon the percent increase in gross floor area and seismic mass (weight) as follows:
  - a. If both the area and weight increases are less than 10 percent, then the only requirement is conformance with 780 CMR 3408.3.5 (as described previously in paragraph II.A.3.a).
  - b. If either the area or weight is increased by 10 percent or more, but neither is increased by more than 100 percent, then the structure must be designed for a percentage of the base earthquake force to be calculated in accordance with 3408.6.1.1 and Figure 3408.1. The percentage of the base earthquake force varies linearly from 40 percent at an area or weight increase of 10 percent to 100 percent at an area or weight increase of 70 percent.

- c. If either the area or weight is increased by more than 100 percent, then the structure in its entirety must conform to the requirements of 780 CMR for new construction.

**B. WIND-RELATED REQUIREMENTS**

1. Again, where the new major floor areas would in all likelihood be framed "structurally separate" from the existing building structure, the effects due to wind on the existing building would not be altered since the "wind-sail area" would not be increased. In this case, a lateral force resisting system must be in place (i.e., the existing system, a retrofitted system, or a completely new system) for the "structure-as-a-whole" that satisfies 780 CMR 1611.0 for new construction, except the Wind Exposure Category can be reduced to "A" (Reference 3408.5.3). (Note: The term "structure-as-a-whole" in 780 CMR is generally interpreted as precluding components, cladding, and local supporting elements.)
2. If an option involves expansion of the existing wind-sail area, then a wind analysis must be performed (Reference 3408.4.2.1). If the analysis reveals that the expansion produces wind effects that exceed the capacity of the existing lateral force resisting system by more than 10 percent, then a new lateral force resisting system (i.e., a retrofitted system or a completely new system) must be in place for the "structure-as-a-whole" that satisfies 780 CMR 1611.0 for new construction, using Wind Exposure Category B. If the analysis reveals that the expansion produces wind effects that do not exceed the capacity of the existing lateral force resisting system by more than 10 percent, then only the requirements defined in II.B.1 apply.

**C. GRAVITY LOAD-RELATED REQUIREMENTS**

1. All new structural systems and elements must satisfy 780 CMR for new construction (Reference 3408.3.1).
2. Existing structural systems and components in sound condition may be reused provided that their structural properties are determined by tests or from generally accepted historical records and the structural analyses of the systems and components demonstrates their capacity to satisfy 780 CMR (Reference 3408.3.2). Existing structural systems and components may be repaired or reinforced if need be (Reference 3408.3.3).

**D. GENERAL REQUIREMENTS**

1. Prior to repair, alteration, addition, and change of use, a structural engineering evaluation must be performed on the existing building to determine the adequacy of the existing structural systems and components that are affected by the repairs, alterations, and additions. The evaluation must include review of original design documents that are available, field investigations, and structural analyses. The evaluation may require detailed field surveys and sampling and testing of in-situ materials. A report of the structural evaluation must be submitted to the building official with the application for a building permit (References 3402.1.1 and 3408.2).

**CENTER ELEMENTARY SCHOOL, STOW, MASSACHUSETTS**  
**FEASIBILITY STUDY**  
**NOVEMBER 5, 2002**  
**PAGE 5**

2. During construction, conventional construction administration services by the Structural Engineer of Record would be required as defined by 780 CMR 1 and 780 CMR 17. Additionally, any assumed conditions on which the structural designs and analyses were based must be verified in the field during construction. If the assumed conditions are altered in a way detrimental to public safety, then the structural design must be redefined and the building official must be notified (Reference 3408.2.3).
3. Prior to repair, alteration, addition, and change of use, geotechnical explorations and analyses must be performed to evaluate the soil-supporting conditions and the foundations for the lateral load analyses required by 780 CMR 3408.3.4 and for the liquefaction analyses required by 780 CMR 3408.7 (Reference 3408.2.4).
4. The application for a building permit must identify all items which, in whole or in part, do not conform with the structural provisions of 780 CMR and all proposed "Compliance Alternatives" for approval by the building official. Proposed Compliance Alternatives, if any, must also be submitted to the BBRS together with copies of the building permit and the building official's decision regarding the proposed Compliance Alternatives (References 3402.1.3 and 3402.1.5).

If you have any questions or require additional information, please do not hesitate to call.

Sincerely,

**DM BERG CONSULTANTS, P.C.**

Ali R. Borojerdi, P.E.  
Vice President

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**FITZMEYER & TOCCI**  
ASSOCIATES, INC.

**Building System Survey**  
**Center School**  
**Stow, MA**  
October 18, 2002  
F&T Project No. 02089.00

**1. Building Summary**

The existing building is a single-story structure, approximately 36,360 SF in size. The original building was constructed in 1954; there were classroom additions in 1957 and 1964. Mechanical and Electrical spaces are located in spaces in the 1957 Building addition. Spaces within the building include a gymnasium/cafetorium with platform, a kitchen (used only for food warming), administrative and nurse's area, a combined teacher workroom faculty lounge (formerly a boy's shower room), a custodial area (formerly a girl's shower room), twelve classrooms serving grades 3 through 5, and several specialized teaching areas including computer lab, science, art, music, library, special needs, and remedial math and reading. The science program is housed in a freestanding adjacent stone building.

**2. Plumbing**

***a. Existing Plumbing System Evaluation***

1. Presently, the plumbing systems serving the building are sanitary waste and vent, cold water, hot water, storm drainage and natural gas.
2. The sanitary waste and vent system collects waste from the plumbing fixtures throughout the building and flows out of the building by gravity at one location to a on-site septic system. A Sump pump in the boiler room serves floor drains and pumps up to the gravity system. There is a grease interceptor in the crawl space which serves the kitchen pot sink.
3. The cold water system service, a 4-inch main, comes into the building at one location, via an exterior well pump and passes through pumps, a pressure reducing station and storage tank and distributes throughout the building. Equipment is old and inefficient.



4. The hot water system originates from a 50 gallon gas-fired water heater located in the boiler room.
5. The storm water drainage system collects storm water from roof drains, collecting it in the crawlspace and basement spaces and directing it out of the building by gravity at several points.
6. The natural gas system serves the boilers and kitchen equipment and is metered in two separate locations outside the building.
7. Staff share 2 single-user toilet rooms, one located across from the teacher dining/workroom, one located in the 1957 addition. The nurse's area has an adjacent single user toilet room. There are clusters of boy's and girl's toilet rooms consisting of the following fixture counts:
  - Total girl's water closets: 4
  - Total girl's lavs: 4
  - Total boy's water closets: 4
  - Total boy's urinals: 2
  - Total boy's lavs: 4
8. There are typically sinks with bubblers in each classroom.

**b. Assessment**

1. Condition – The piping on all systems appears to be in good condition. Plumbing fixtures are in fair to poor condition, are old and non-code compliant. The water heater appears to be in good condition. Due to water conditions, all water service valves are in poor condition.
2. Adequacy – All systems appear to be adequately sized for their present respective service.
3. Code Compliance – All systems appear to be code compliant, with the following exceptions:
  - Vacuum breakers are not installed on some service sink faucets and outside wall hydrants.
  - Lavatories do not have metering faucets, flow control devices, and they are not operating at 105 degrees F.
  - Toilets are not of the 1.6 GPF (gallons per flush) type.
4. Cost Effectiveness – All plumbing systems appear to be cost effective for their



use, with the exception of toilet flushometers and metering/flow restrictors at lavatory sinks.

5. There are inadequate quantities of toilet room facilities for the staff

**c. Recommendations:**

1. Install vacuum breakers on all service sink faucets and outside wall hydrants.
2. Replace all water closets, urinals and lavatories with code compliant fixtures.
3. Install a new independent cold water line with lead free solder joints to serve kitchen equipment, drinking fountains and classroom sinks equipped with bubblers. This work is required for code compliance only if the building undergoes a major renovation; in any case, periodic water testing should continue in order to ensure that it is safe for human consumption.
4. Replace all water service valves with new ball valves.
5. Replace existing water booster pumps and storage tank with new booster pump and storage tank equipment.
6. Provide 3 toilet facilities for staff.

**d. Estimated Cost of Recommendations: \$76,250**

Item 1: \$250.  
Item 2: \$25,000.  
Item 3: \$12,000.  
Item 4: \$10,000.  
Item 5: \$25,000.  
Item 6: \$4,000.

**3. Fire Protection**

**a. Existing Fire Protection System Evaluation**

1. Presently, the building is not protected with an automatic sprinkler system.

**b. Recommendations**

1. Install a complete automatic dry-type sprinkler system throughout the entire building, protecting both the occupied spaces and the attic spaces. The new system would



include a 500 GPM diesel fire pump and a 40,000 gallon buried sprinkler water storage tank.

**c. Estimated Cost of Recommendations: \$158,100**

**4. Heating, Ventilation, and Air-conditioning (HVAC)**

**a. Existing Heating, Ventilation and Air-conditioning (HVAC) System Evaluation:**

- The central boiler plant consists of two (2) HB Smith cast iron hot water boilers: a Mills Series 44 Fire Box boiler sitting on a brick base, installed in 1954, and a Series 28 wet-based boiler, installed in 1985. The newer boiler is currently used as the lead boiler, with the older boiler used as a back-up. Both boilers have gas-fired Power-Flame burners, which appeared to be under five (5) years old. These burners were reported to have occasional operating problems; the plant is serviced under contract by Royal Steam. The combustion air duct appeared to be undersized, and there was no opening within 12" of the room's high point (per Code).
- The heating hot water is distributed to the heating terminal devices by two (2) base-mounted end-suction B&G pumps, with one used as a standby. These pumps appeared to be replacements, but were in only fair condition. These pumps were reported to be operating reliably.
- Each classroom is heated and ventilated by a vertical Unit Ventilator (UV) mounted along its exterior wall; the UVs have hot water heating coils. Supplemental heating is provided to the classrooms by finned-tube radiation. Both the UVs and the finned-tube radiation were original to their respective buildings, and were in poor condition. The fans in the UVs were turned off in most classrooms because of their noisy operation.
- The offices and teachers dining/workroom are served by finned-tube radiation only; no Code-required ventilation was provided.
- The cafeteria (Platform) is heated and ventilated by a vertical floor-mounted unit ventilator with a hot water coil; supplemental heat is provided by finned-tube radiation. The unit ventilator is in poor condition.
- The Gymnasium/Cafetorium is heated and ventilated by two (2) Heating/Ventilating units mounted above the Entrance Lobby at one end of the space. The units supply air to the space via sheetmetal ductwork located in the ceiling space; the air is removed by an exhaust fan. The equipment appeared to be original to the building and was in poor condition.



located in the nurse's office on the first floor level. The original initiating and indicating circuits have been extended from the original FACP to the newer FACP. Manual pull stations are original to the building. Heat detectors are used for general coverage and are original to the building. Audio/Visual devices appear to be original to the building. There is a remote annunciator located on the building exterior with 8 zone indicator lights.

- Normal lighting is generally supplied via 120 volt surface or recessed mounted fluorescent fixtures with T12 lamps. The fixtures have acrylic lenses.
- Emergency lighting is provided by fairly new self contained battery backup units.
- There is no master clock system. All clocks are battery powered.
- The intercom system is non-functional in several areas, including the 1957 wing, gym/cafeterium, nurse's area, teacher dining/workroom, and the freestanding stone science building.
- Networked educational technology cabling and terminations have been provided in most rooms, however, there is inadequate power available to support PC's, printers, and other electrical devices.

#### **b. Assessment**

##### **1. Condition**

- The electrical service entrance equipment, branch circuit panelboards and branch circuit wiring throughout the building have far exceeded their expected service lives.
- The emergency generator has 4684 hours of running time on the motor. There are numerous control wires cut or disconnected on the generator, indicating that it is not functional.
- The building's fire alarm system has exceeded its useful service life. It should be noted that the batteries in the FACP have not been replaced since 1995; the "Battery Charged" indicator light is not on. This is an indication that the batteries may have failed.
- Normal lighting is generally in poor condition. The building's original light fixtures were replaced with 120 volt fluorescent fixtures. The fixtures have acrylic wraparound lenses which are cracked, broken and discolored due to aging.



- Emergency lighting and exit signage is provided by the use of self-contained units with battery packs. The fixtures are fairly new. This further indicates that the emergency power system is not functional.

2. Adequacy

- The electrical service to the building is inadequate. Many classrooms have only one power outlet.
- The emergency power system for the building is inadequate.
- The fire alarm system for the building is inadequate.
- The lighting levels and quality is inadequate for the building usage. Some areas have entire lighting systems which do not operate.
- The intercom system is inadequate. The lack of communication service to some areas of the school poses safety concerns.

3. Code Compliance

- There are numerous instances of code violations with the service entrance equipment and distribution systems throughout the building.
- The generator, distribution feeders and branch circuit panelboards are required to be in 2 hour fire rated enclosures.
- The present fire alarm system does not meet ADA requirements. The system has insufficient initiating and indicating device coverage throughout the building.

*c. Recommendations*

- The building requires a new utility service. The entire electrical distribution system throughout the building needs to be replaced. All branch circuiting and branch circuit devices throughout the building need to be replaced. All rooms should be outfitted with adequate quantity and type of receptacles to support the electrical devices.
- The generator, emergency distribution system and emergency branch circuits throughout the building need to be replaced.



- The entire fire alarm system, including the fire alarm control panel, circuit wiring and all devices need to be replaced.
- Provide new fluorescent light fixtures with electronic ballasts and T8 type energy efficient lamps throughout.
- Provide a complete master clock system.
- Provide a dedicated Main Tel/Data/CATV room in the building and provide new wiring for each system throughout in accordance with current codes. The new system should be installed per current standards for similar educational facilities.
- Provide a new programmable combination intercom/telephone system with handsets in each classroom.

***d. Estimated Cost of Recommendations: \$497,700***

02089003.rpt – Stow Center

UEC

October 17, 2002

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OCT 16 2002

T.D.P.C. 101

Mr. Keith Hoffses  
Design Partnership of Cambridge  
500 Rutherford Avenue  
Charlestown, MA 02129

Reference: Renovation and Demolition Project  
Pompositticut and Center Schools, Stow, MA

Dear Mr. Hoffses:

Thank you for the opportunity for Universal Environmental Consultants (UEC) to provide professional services.

The following observations were made during the site visit conducted on Tuesday, October 15, 2002 to review Asbestos Containing Materials (ACM) and other hazardous materials at the Pompositticut and Center Schools, Stow, MA.

**Pompositticut School:**

- It appears that all ACM have been removed from the boiler room
- ACM pipe and hard joint insulation was assumed to exist above ceilings
- 12"x 12" Vinyl floor tile and mastic were assumed to contain asbestos
- Window/door framing and glazing caulking was assumed to contain asbestos
- Blackboard and glue were assumed to contain asbestos
- According to the School maintenance person, the underground oil tank was replaced
- According to the School maintenance person, the roof was replaced
- Ballasts in light fixtures were assumed to contain PCB's.
- Tubes in light fixtures were assumed to contain mercury.

**Center School:**

- It appears that all most of the ACM have been removed from the boiler room. However, boiler insulation was assumed to contain asbestos
- Insulation inside old boiler was assumed to contain asbestos
- ACM pipe and hard joint insulation was assumed to exist above ceilings, attic and in crawl spaces
- 9"x 9" Vinyl floor tile and mastic were assumed to contain asbestos
- Window framing and glazing caulking was assumed to contain asbestos
- Glue daub on 1'x 1' ceiling tile was assumed to contain asbestos
- Blackboard and glue were assumed to contain asbestos
- Roofing material was assumed to contain asbestos

Universal Environmental Consultants  
1151 Worcester Rd  
Framingham, MA 01701  
Tel: (508) 628-5486  
Fax: (508) 628-5488

Mr. Keith Hoffses

October 17, 2002

Page 2

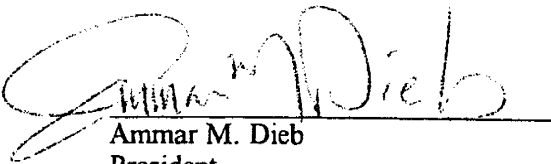
- According to the School maintenance person, the underground oil tank was replaced
- Ballasts in light fixtures were assumed to contain PCB's.
- Tubes in light fixtures were assumed to contain mercury.

A complete comprehensive inspection is needed prior to providing cost estimates for hazardous material abatement. *See attached for preliminary estimate.* *detailed*

Please do not hesitate to call me at (508) 628-5486 if you have questions.

Very truly yours,

Universal Environmental Consultants

  
Ammar M. Dieb  
President

UEC:\smallprojects\DPCStow.DOC

  
**UEC**

October 24, 2002

OCT 25 2002

Mr. Keith Hoffses  
Design Partnership of Cambridge  
500 Rutherford Avenue  
Charlestown, MA 02129

Reference: Renovation and Demolition Project  
Pompositticut and Center Schools, Stow, MA

Dear Mr. Hoffses:

Thank you for the opportunity for Universal Environmental Consultants (UEC) to provide professional services.

Below please find cost estimates for hazardous materials abatement at the Pompositticut and Center Schools, Stow, MA. The cost estimates are based on visual inspection of the Schools and information provided in the AHERA Management Plans.

The cost estimates include removal and disposal of accessible asbestos containing materials (ACM) and an allowance for removal of inaccessible or hidden ACM that may be found during the renovation project. The cost estimates also include the removal of windows (putty assumed to contain asbestos), vinyl floor tile (mastic assumed to contain asbestos) and demolition of the boilers (ACM may be found inside the boilers).

Lead abatement is not required. However, OSHA regulations must be implemented during renovation.

Roofing material is not required to be removed by a licensed asbestos contractor. However, OSHA and DEP regulations must be implemented during renovation.

*Type of Material*

*Estimated Cost*

**Pompositticut School:**

Vinyl Floor Tile and Mastic	\$	120,000.00
Pipe and Hard Joint Insulation	\$	10,000.00
Windows and Doors	\$	25,000.00
Blackboard and Glue	\$	5,000.00
Misc. and Hidden Asbestos	\$	20,000.00
Light Fixtures/PCB's Ballasts	\$	10,000.00
Engineering Fees	\$	30,000.00

**Total:** \$ 220,000.00

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Mr. Keith Hoffses

October 24, 2002

Page 2

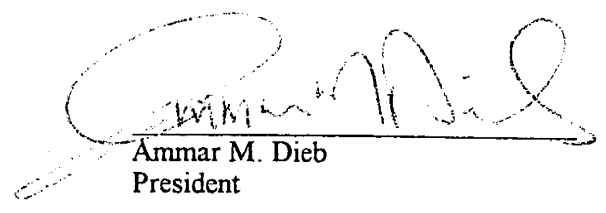
**Center School:**

Vinyl Floor Tile and Mastic	\$	120,000.00
Pipe and Hard Joint Insulation	\$	15,000.00
Windows and Doors	\$	25,000.00
Blackboard and Glue	\$	5,000.00
Misc. and Hidden Asbestos	\$	20,000.00
Ceiling Tile Glue Daub	\$	10,000.00
Boiler Demolition	\$	10,000.00
Light Fixtures/PCB's Ballasts	\$	10,000.00
Engineering Fees	\$	35,000.00
<i>Total:</i>	<i>\$</i>	<i>250,000.00</i>

Please do not hesitate to call me at (508) 628-5486 if you have questions.

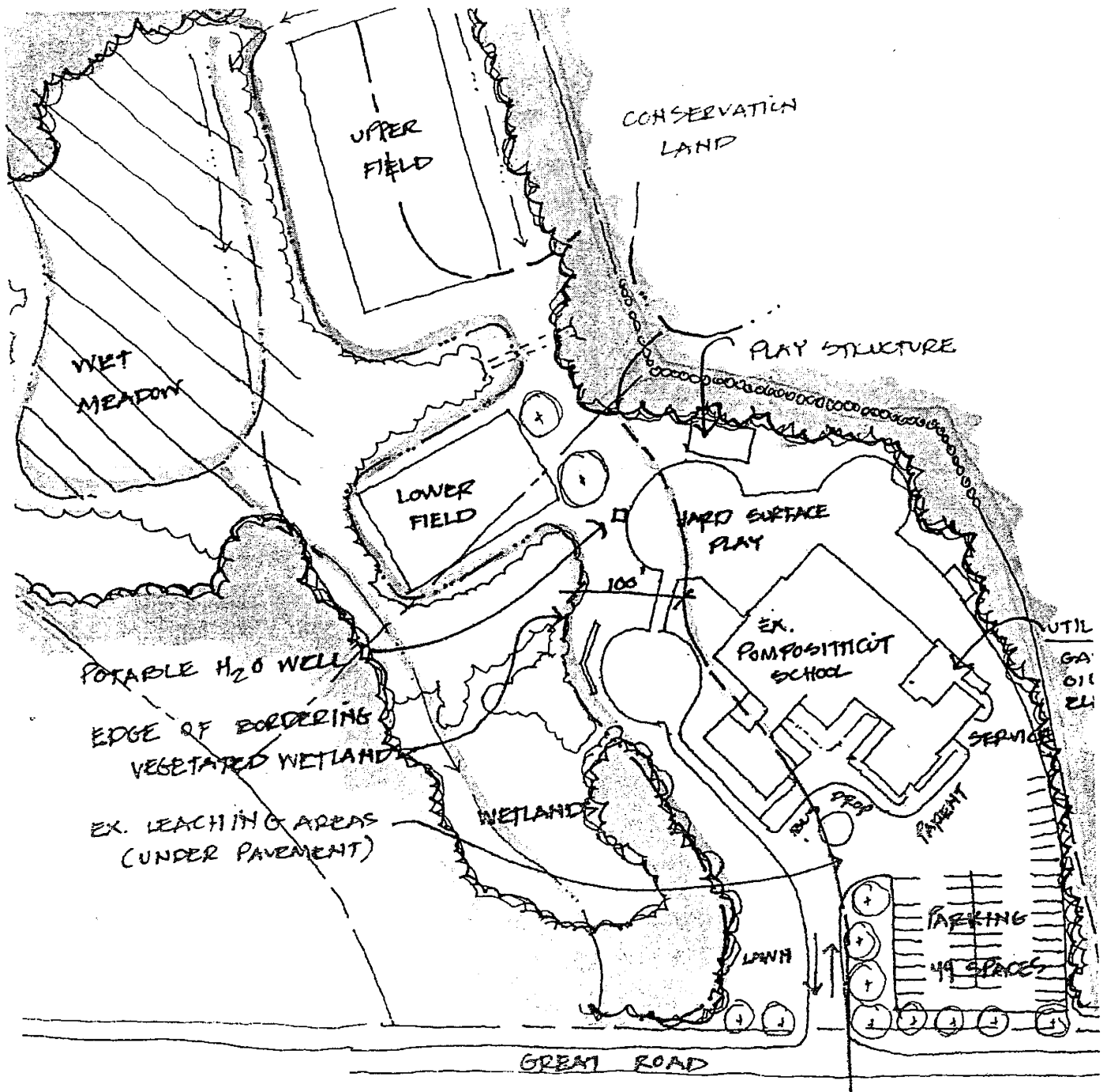
Very truly yours,

Universal Environmental Consultants



Ammar M. Dieb  
President

UEC:\smallprojects\DPCStowCost



# Pompositticut Site Analysis

Stow Elementary Schools

Stow, Massachusetts  
27 November 2002



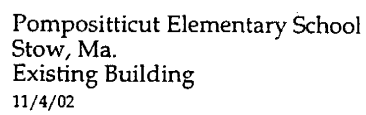
Designpartnership

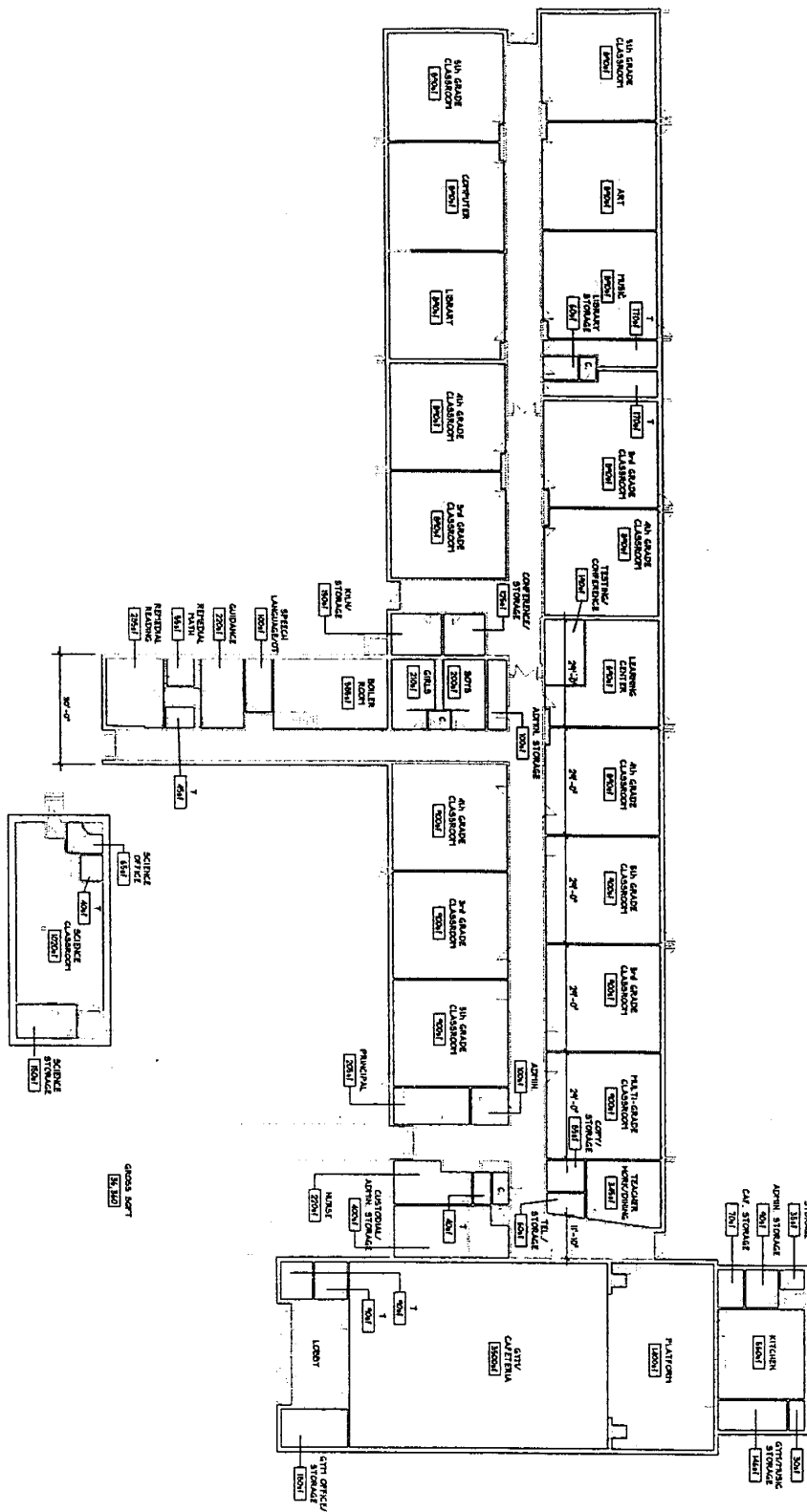


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INTERIOR DESIGN









**Educational  
Space  
Assessment**

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**Space Analysis**

**Section**

**5**

## Educational Space Assessment

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### Center School

As originally conceived, and currently, the school utilizes fairly "standard" rectangular classrooms along either side of a "double loaded" corridor to house grades 3 through 5. A learning center, self-contained classroom, media center, computer lab, music, and art are also housed in the standard classrooms. The building southerly end contains a multipurpose gym/cafeteria with a small warming kitchen. The 1957 addition, known as the west wing, houses small SPED and remedial rooms. The freestanding stone building accommodates the science program.

Shortcomings in this facility derive from a general lack of adequate space for educational needs. For example, the media center is roughly half the size of Massachusetts Department of Education area standards. Computer, art, and music are also below standards. SPED and remedial spaces are undersized or non-existent in the case of OT. Support spaces are also lacking. Administration, teacher workroom, nurse, and storage areas are all significantly inadequate. There are only two single-user toilet rooms for the entire staff.

Generally, components of infrastructure necessary for educational support are insufficient or non-existent. Several classrooms have only one or two electrical outlets to power several electric devices, including computers, printer, overhead projector, tape recorder, etc. Case-work and chalkboards are in need of repair.

Most areas in the school are non-compliant with barrier free requirements.

Overall, the building falls well short of current building standards resulting in a less than ideal learning environment.

### Pompositticut School

As originally conceived, the school utilized the large central area as a multigrade "open classroom", which was a popular, but short-lived, concept in the 1970's. Natural light is gained in this area via a high-roofed clerestory. The central open area is surrounded by several smaller rooms originally intended as art, science, and 6 "amphitheater" areas. The amphitheaters all contain high stepped seating constructed of cast-in-place concrete.

Administrative areas and gym/cafeteria radiate out as wings from the main central building block.

Currently the school utilizes the large central open area as classrooms and media center with subdivisions between groups achieved with demountable partitions. The stepped seating amphitheaters are rarely utilized due to limited useable floor area.

The existing plan has several shortcomings, mainly deriving from the educational space needs and changed teaching and learning models now favored over the open classroom model. It should be noted that the open classroom model quickly fell out of disfavor by educators due to the lack of privacy between classes and resultant difficulty in maintaining student focus. The demountable partitions in current use help with visual distraction but have limited acoustical value. They also are lacking in appropriate instructional surfaces such as marker-boards. Acoustical panels suspended from the high roof overhead do little more than obstruct the natural light from the clerestory. Air flow is also obstructed, and the overall result is a less than ideal learning environment.

As mentioned, the amphitheaters have limited useful instructional area, and are non-compliant with barrier-free access requirements for new construction. These rooms are well below Massachusetts Department of Education area standards. Overall, the building does not meet "new construction" standards for air exchanges, energy code and recommendations for natural and artificial lighting.

# Existing Pompositticut School Space Analysis

Rm Name	SBA area range		Existing Area	SBA range deviation		Remarks
	Min	Max		Min	Max	
Table A: Basic Educational Space						
General Classrooms						
Kindergarten ***	1200	1300	1,175	(25)	(125)	includes (22sf) toilet but not storage closet
Kindergarten ***	1200	1300	1,175	(25)	(125)	includes (22sf) toilet but not storage closet
Kindergarten ***	1200	1300	1,025	(175)	(275)	includes (22sf) toilet but not storage closet
1st Grade ***	900	1000	860	(40)	(140)	does not include storage closet
1st Grade ***	900	1000	905	5	(95)	does not include storage closet
1st Grade ***	900	1000	915	15	(85)	does not include storage closet
1st Grade ***	900	1000	840	(60)	(160)	does not include storage closet
2nd Grade ***	900	1000	1,040	140	40	does not include storage closet
2nd Grade ***	900	1000	685	(215)	(315)	does not include storage closet
2nd Grade ***	900	1000	930	30	(70)	does not include storage closet
2nd Grade ***	900	1000	940	40	(60)	does not include storage closet
subtotal				(310)	(1,410)	
Classroom Storage						
Kindergarten Storage *			140			(2) @ 70sf each
Classroom Storage *			200			(2) @ 25sf, (3) @ 50sf each
Specialized Teaching Stations						
Science	1000	1200	570	(430)	(630)	
Computer	1000	1200	570	(430)	(630)	
Art	1000	1200	570	(430)	(630)	
Music	1000	1200	780	(220)	(420)	(430sf is stepped seating)
Music Storage *			30			
Library ***	1800	3000	1,265	(535)	(1,735)	
Gymnasium **	3000	3000	3,110	110	110	floor area adequate (however, height is marginal)
subtotal				(1,935)	(3,935)	
Special Needs						
Speech/SPED Office	(as needed)		285	(as needed)		shared space
Resource	(as needed)		285	(as needed)		divided into 2 spaces
Jump-Start***	(as needed)		150	(as needed)		
Occup. Therapy	(as needed)		345	(as needed)		
Remedial						
Reading Office	(as needed)		100	(as needed)		
Reading	(as needed)		775	(as needed)		divided into 2 spaces (426sf is stepped; as book stor)
Other Teaching Stations						
1st Grade (shared) Amphitheaters *			1,550			(2) @ 775sf each (430sf is stepped seating)
2nd Grade (shared) Amphitheaters *			1,550			(2) @ 775sf each (430sf is stepped seating)
2nd Grade Common Area * ***			565			
			23,330	Table A Total (sqft)		

# Existing Pompositticut School Space Analysis

Rm Name	SBA area range		Existing	SBA range deviation		Remarks
	Min	Max	Area	Min	Max	
Table B: Miscellaneous Educational Space						
Cafeteria +	920	1380	included above	2,190	1,730	space is same as Gymnasium, floor area is ample
Caf Table Storage *			40			
Guidance	(as needed)		285	(as needed)		
Health (Nurse)	300	750	170	(130)	(580)	
Kitchen ++	(not full service)		300	(not full service)		
Administration						
Principal			180			
Asst. Principal			95			
Main Office			270			
Work			100			
Office Supplies			35			
total admin	up to 800 sf		680	(120)		
Small Group and Seminar						
Conference	up to 500 sf ea		135	(365)		also used as admin conf
Teachers Work/Dining	up to 500 sf ea		345	(155)		also used as admin conf
Phys. Ed.						
Gym Storage *			40			
			1,995	Table B Total (sqft)		
Other Space						
Telephone/Storage *			55			
Admin. (General) Storage *			155			
Day Care Storage *			40			
Boiler Room/Custodian *			1,010			
Custodial Storage			110			
Generator			90			
Main Electrical			115			
Toilets @ Gym *			200		(2) @ 100sf each	
Toilet @ Work/Dining *			70		(2) @ 35sf each	
Toilet @ Nurse/Admin *			20			
Toilet @ Jump-start *			20			
Toilets @ Classrooms *			795		(3) @ 120sf, (3) @ 145sf each	
Circulation space/wall thicknesses/chases *			8,410			
			11,090	Other Space Total (sqft)		
			36,415	Gross Total (sqft)		
* SBA specifies no area range in this category; storage						

\* SBA specifies no area range in this category; storage requirement as needed.

\*\* SBA (603 CMR 38.05 Table 1) specifies in a 12+ classrm school, 3000sf for ea. of first 2 teaching stations & 2000 to 3000sf ea. additional

\*\*\* Existing space is defined by mobile partitions/furniture and may vary

+ SBA specifies 15sf per pupil for 1/2 or 1/3 of the enrollment

++ SBA specifies for full service kitchen, 1300sf for the first 300 meals + 1sf for each additional meal serviced.

# Existing Center School Space Analysis

Rm Name	SBA area range		Existing	SBA range deviation		Remarks
	Min	Max	Area	Min	Max	
Table A: Basic Educational Space						
General Classrooms						
3rd Grade	900	1000	900	0	(100)	
3rd Grade	900	1000	900	0	(100)	
3rd Grade	900	1000	890	(10)	(110)	
3rd Grade	900	1000	890	(10)	(110)	
4th Grade	900	1000	900	0	(100)	
4th Grade	900	1000	890	(10)	(110)	
4th Grade	900	1000	890	(10)	(110)	
4th Grade	900	1000	890	(10)	(110)	
5th Grade	900	1000	900	0	(100)	
5th Grade	900	1000	900	0	(100)	
5th Grade	900	1000	890	(10)	(110)	
5th Grade	900	1000	890	(10)	(110)	
subtotal				(70)	(1,270)	
Specialized Teaching Stations						
Science	1000	1200	1,020	20	(180)	
Science Office *			65			
Science Storage *			150			
Computer Labs	1000	1200	890	(110)	(310)	
Art	1000	1200	890	(110)	(310)	
Kiln/Storage *			150			remote + shared w/ general storage
Music	1000	1200	890	(110)	(310)	
Library	1800	3000	890	(910)	(2,110)	
Library Storage *			60			remote (across corridor)
Gymnasium **	3000	3000	3,500	500	500	floor area adequate (however, height is marginal)
subtotal				(720)	(2,720)	
Special Needs						
Multi-Grade Classroom	(as needed)		900	(as needed)		self-contained classroom
Speech	(as needed)		100	(as needed)		shared w/ OT
OT	(as needed)	included above		(as needed)		shared w/ Speech
Learning Center	(as needed)		690	(as needed)		resource room, divided into 3 spaces
Testing/Conf.	(as needed)		190	(as needed)		
Remedial						
Math	(as needed)		55	(as needed)		
Reading	(as needed)		285	(as needed)		
			21,455	Table A Total (sqft)		

## Existing Center School Space Analysis

Rm Name	SBA area range		Existing	SBA range deviation		Remarks
	Min	Max	Area	Min	Max	
Table B: Miscellaneous Educational Space						
Cafetorium Seating +	1380	2070	included above	2,120	1,430	space is same as Gymnasium, floor area is ample
Stage (Platform) *			1,400			
Caf. Table Storage *			70			
Guidance	(as needed)		220	(as needed)		
Health (Nurse)	300	750	220	(80)	(530)	
Kitchen ++	(not full service)		595	(not full service)		includes storage
Administration						
Principal			205			shares w/ assistant principal
General Office			100			
total admin	up to 800 sf		305		(495)	
Small Group and Seminar						
Teachers Work/Dining	up to 500 sf ea		345		(155)	also used as admin conf
Conference/Storage	up to 500 sf ea		125		(375)	
Phys. Ed.						
Gym Office/Storage *			326			180sf gym/office storage + 146sf gym/music storage
			3,606			Table B Total (sqft)
Other Space						
Copy/Storage *			85			
Telephone/Storage *			60			
Custodial Storage *			400			40sf used for Admin Storage
Custodial Closets *			94			1 @ 28sf + 1 @ 29sf + 1 @ 37sf
Admin. (General) Storage *			190			1 @ 100sf + 1 @ 90sf
Boiler Room *			585			
Toilets @ Caf/Gym *			180			(2) @ 90sf each
Toilet @ Kitchen *			30			
Toilet @ Nurse *			40			
Toilet Rooms (student) *			750			1 @ 200sf + 1 @ 210 + 2 @ 170sf each
Toilet @ Guidance *			45			
Toilet @ Science *			40			
Circulation space/wall thicknesses/chases *			8,800			
			11,299			Other Space Total (sqft)
			36,360			Gross Total (sqft)

\* SBA specifies no area range in this category; storage requirement as needed.

\*\* SBA (603 CMR 38.05 Table 1) specifies in a 12+ classrm school, 3000sf for ea. of first 2 teaching stations & 2000 to 3000sf ea. additional

+ SBA specifies 15sf per pupil for 1/2 or 1/3 of the enrollment

++ SBA specifies for full service kitchen, 1300sf for the first 300 meals + 1sf for each additional meal serviced.



## Enrollment Projections

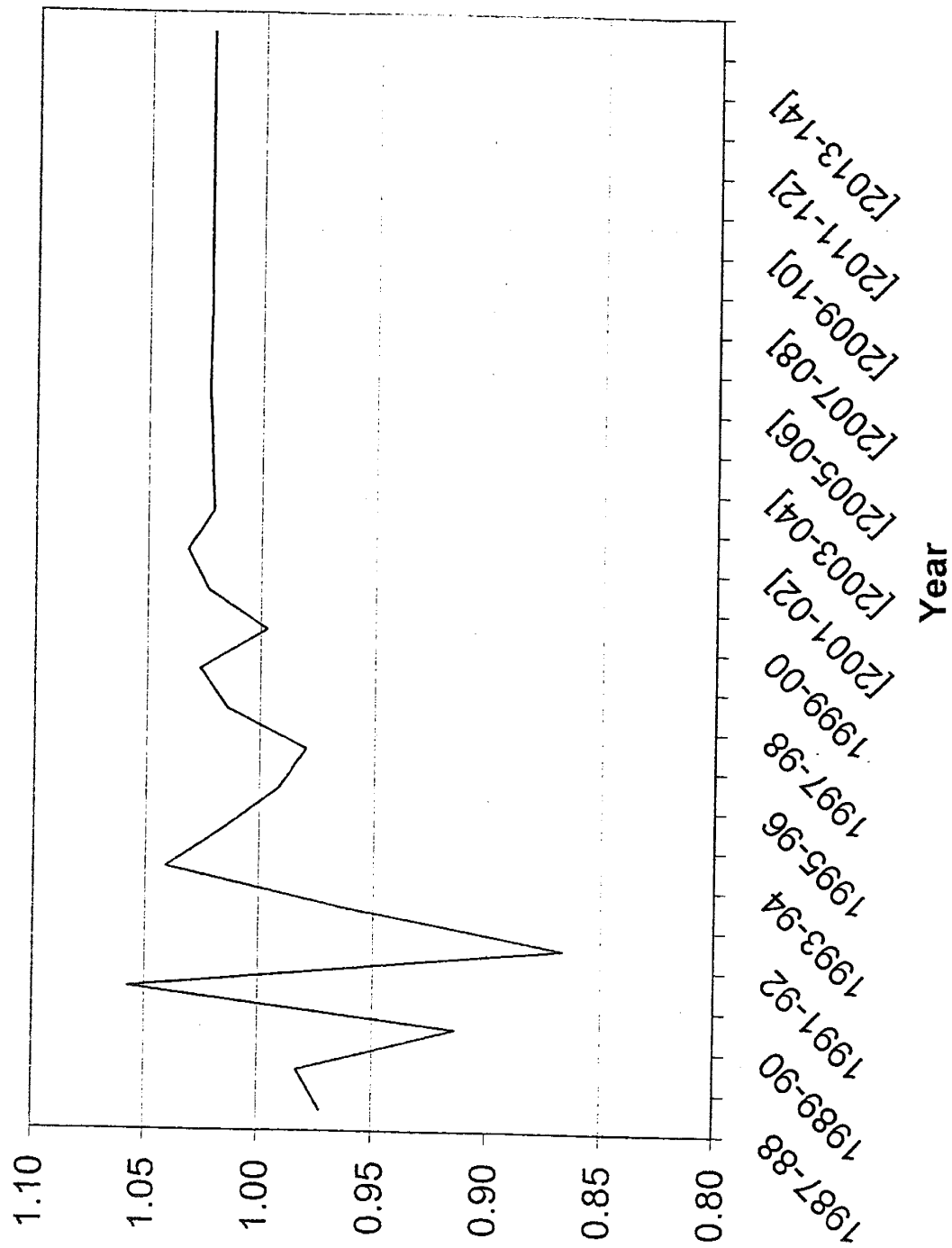
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Because the extent of potential enrollment growth is a matter of major concern to the Town of Stow School Building Committee, the design team has undertaken two different approaches to enrollment projections. Design Partnership has prepared a range of 5 different cohort survival projections based on two different projections of future births, one showing level annual resident births and one showing a modest increase in annual births.

In addition, Design Partnership has engaged Rickes Associates, using data generated by MISER, to prepare enrollment projections using cohort survival methodology and incorporating an additional migration factor to recognize additional growth trends. This projection, which is based on a slightly more aggressive projection of resident births than the Design Partnership projections, predicts a K-5 enrollment for the 2012-2013 school year of 728 pupils. Recognizing the potential impact of growth trends in the Town, the School Building Committee has elected to adopt the Rickes projections as the basis for design for its elementary school(s).

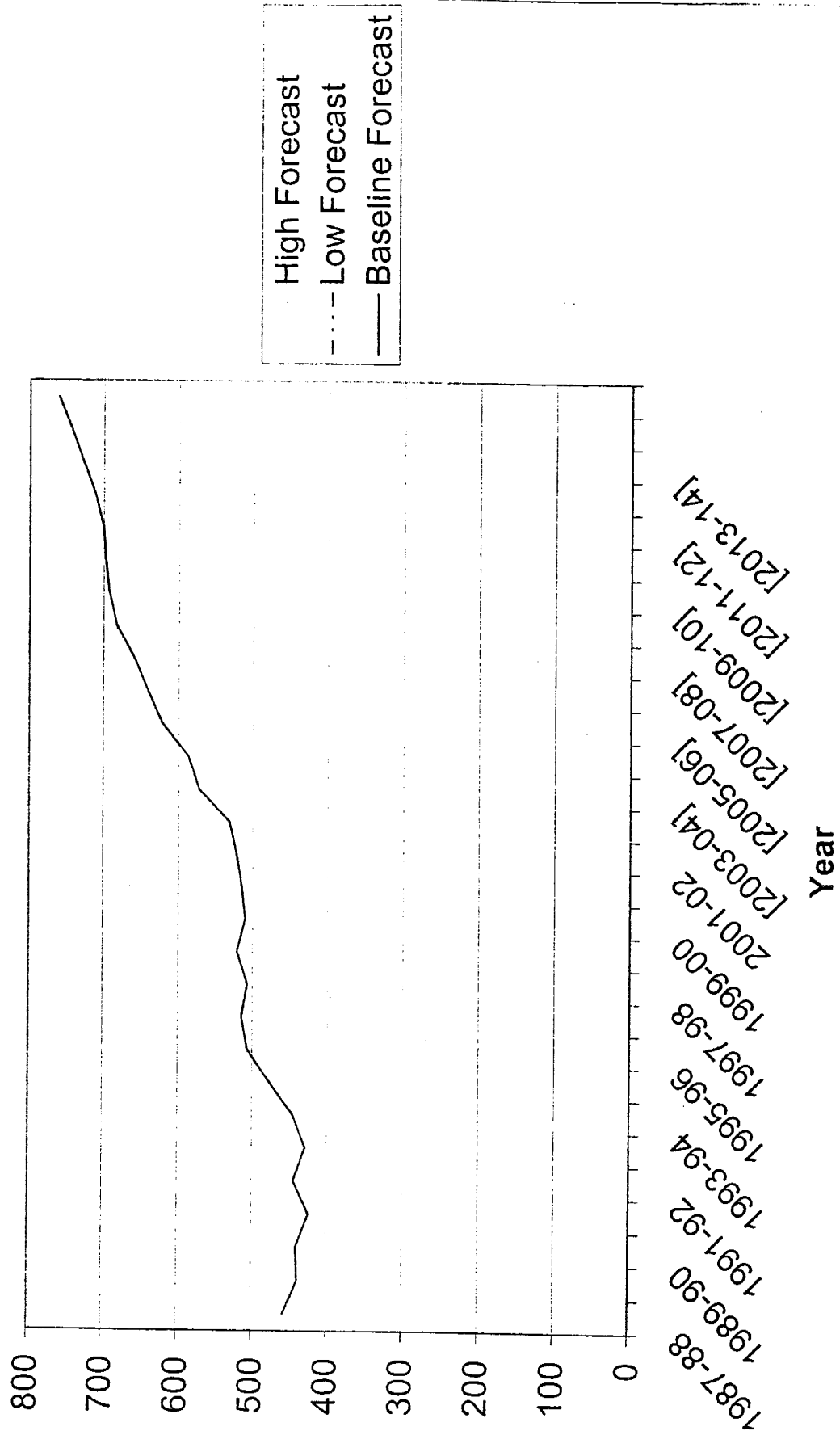
BrthYear	Births	SchYear	K	Stow, Baseline Forecast					5 Total	Mig Rates Standard
				1	2	3	4	5		
(1981-82)	64.2	1986-87		87	80	71	66	77	77	458
(1982-83)	65.7	1987-88		66	87	79	65	62	80	439
(1983-84)	67.3	1988-89		74	79	80	76	67	65	441
1984-85	68.8	1989-90		86	62	70	80	65	61	424
1985-86	70.3	1990-91		70	82	71	67	87	68	445
1986-87	71.8	1991-92		73	90	68	68	68	62	429
1987-88	73.4	1992-93		87	76	84	67	66	66	446
1988-89	74.9	1993-94		76	97	78	90	68	69	478
1989-90	78.1	1994-95		84	85	97	84	89	68	507
1990-91	73.5	1995-96		77	86	82	96	84	90	515
1991-92	77.8	1996-97		77	89	82	85	92	82	507
1992-93	72.9	1997-98		91	77	84	89	87	93	521
1993-94	78.5	1998-99		76	88	73	96	92	85	510
1994-95	79.5	1999-00		82	85	87	71	98	92	515
1995-96	83.6	2000-01		84	89	87	88	75	99	522
1996-97	88.6	2001-02		86	95	90	84	103	73	531
1997-98	91.5	[2002-03]		99.2	92.6	94.0	94.5	88.3	103.6	572.2
1998-99	93.9	[2003-04]		106.5	105.7	90.8	97.3	98.6	87.7	586.6
1999-00	89.9	[2004-05]		109.9	113.8	103.8	93.7	101.8	98.0	621.0
2000-01	88.2	[2005-06]		104.6	117.4	111.8	107.1	98.2	101.1	640.1
[2001-02]	89.9	[2006-07]		105.4	111.9	115.4	115.5	112.2	97.6	658.0
[2002-03]	91.7	[2007-08]		107.5	112.6	110.0	119.3	120.9	111.6	682.0
[2003-04]	93.4	[2008-09]		108.5	114.9	110.7	113.6	124.9	120.2	692.8
[2004-05]	95.3	[2009-10]		110.8	116.0	112.9	114.3	119.0	124.2	697.2
[2005-06]	97.1	[2010-11]		113.1	118.5	114.0	116.6	119.7	118.3	700.2
[2006-07]	101.0	[2011-12]		115.4	120.9	116.4	117.8	122.1	119.1	711.7
[2007-08]	103.0	[2012-13]		119.9	123.3	118.8	120.3	123.3	121.4	727.1
[2008-09]	105.0	[2013-14]		122.2	128.2	121.2	122.7	125.9	122.6	742.9
[2009-10]	107.0	[2014-15]		124.6	130.6	125.9	125.2	128.5	125.2	760.2

# Migration Rates, Stow

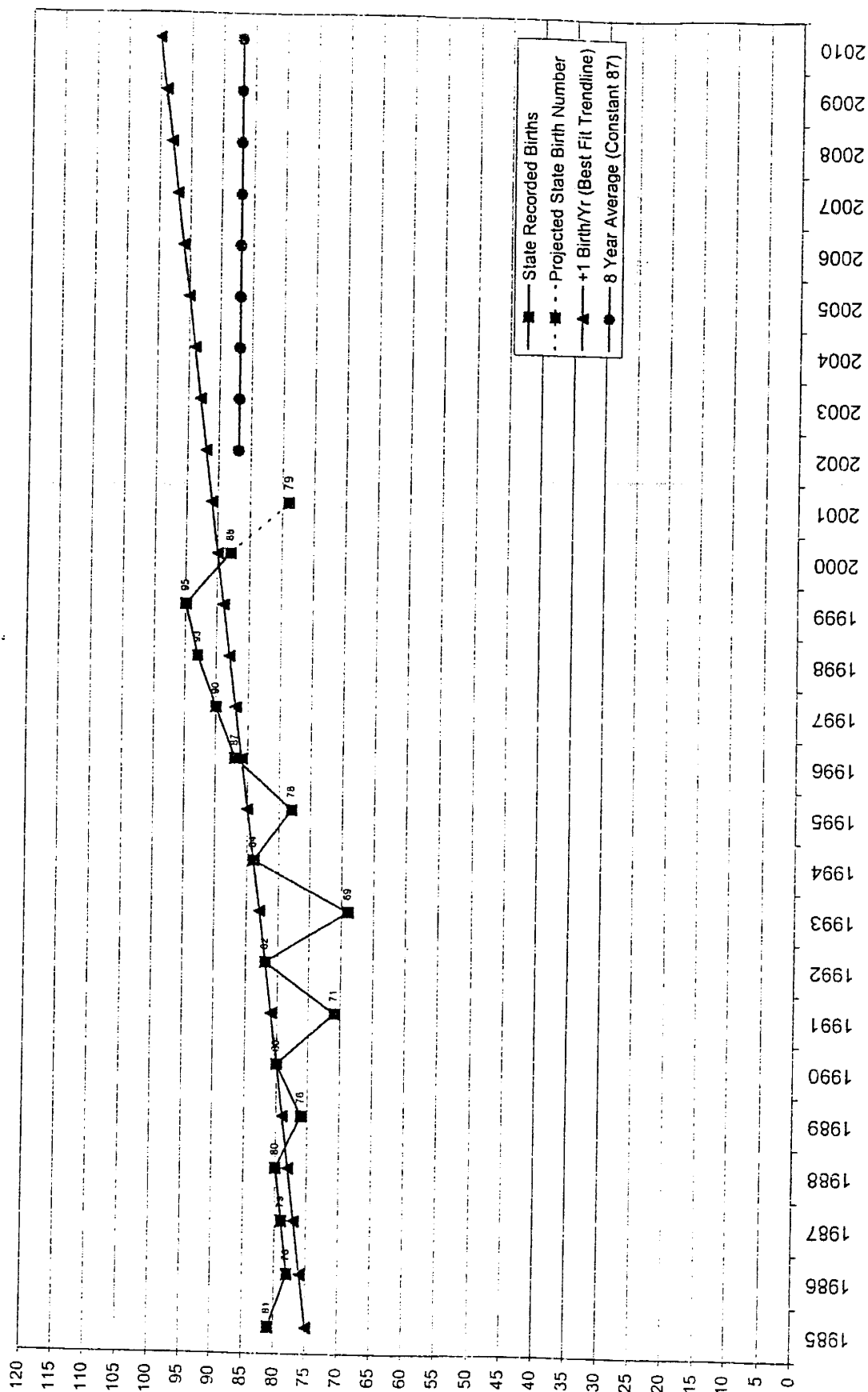


— Migration Rates

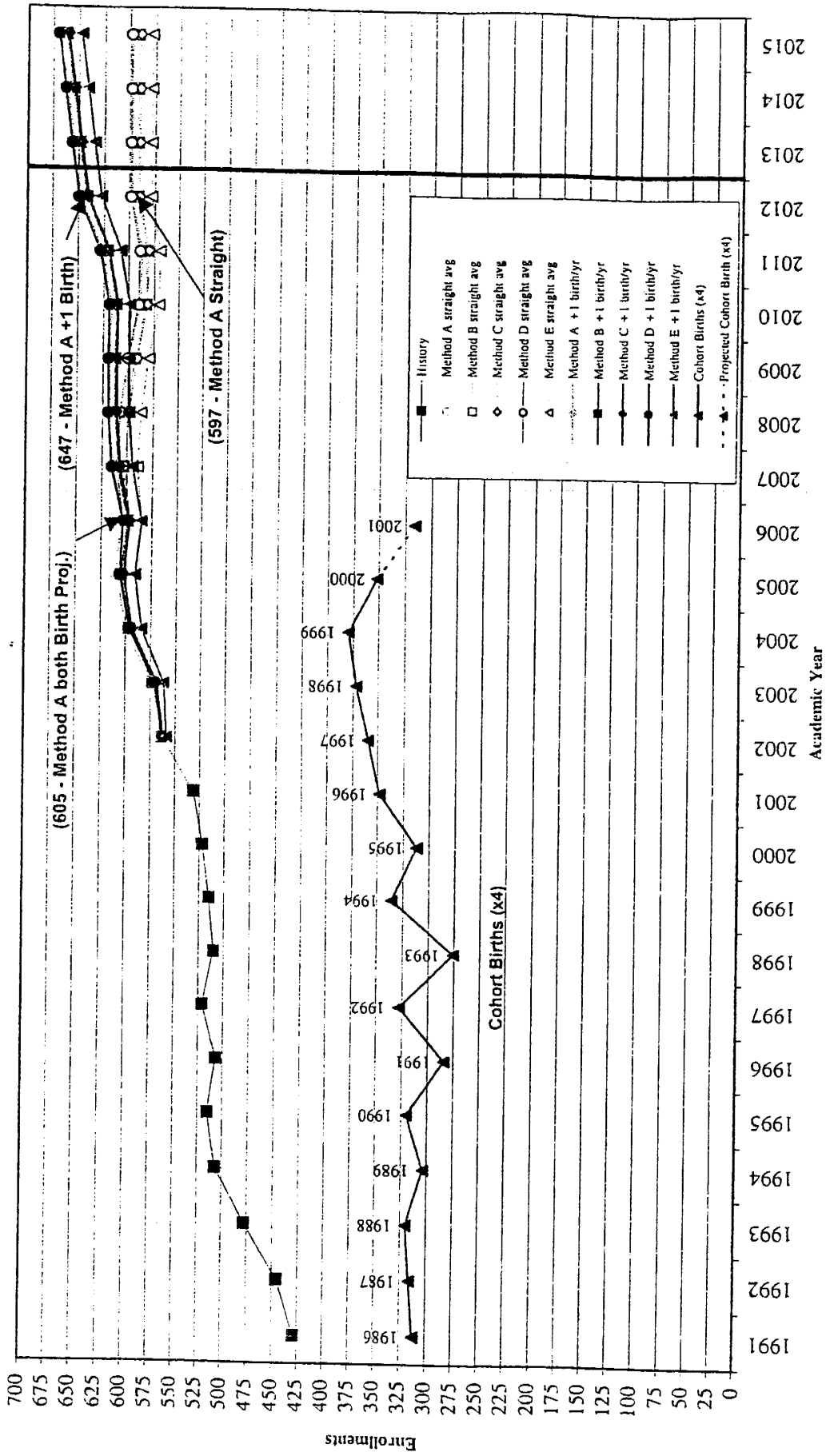
## Baseline and High and Low Forecasts, Stow



# HISTORIC AND PROJECTED BIRTHS STOW, MA



# ENROLLMENT PROJECTIONS FOR GRADES K-5 STOW, MA



STOW, MA  
ENROLLMENT PROJECTIONS - Straight Average

Method B - Straight Five Year Method

Five Year Data Base, Average of Four Progression Ratios

Academic Year	K Cohort Birth Year	K Cohort Births	Kind.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	93	92	94	92	90	102	564
2003-04	1998	93	96	100	92	97	99	89	572
2004-05	1999	95	98	104	100	94	103	98	596
2005-06	2000	88	91	106	103	102	101	102	604
2006-07	2001	79	82	98	105	105	109	100	599
2007-08	2002	87	90	88	97	107	113	108	603
2008-09	2003	87	90	97	87	100	115	112	601
2009-10	2004	87	90	97	96	89	107	114	593
2010-11	2005	87	90	97	96	98	96	106	583
2011-12	2006	87	90	97	96	98	105	95	582
2012-13	2007	87	90	97	96	98	105	104	591
2013-14	2008	87	90	97	96	98	105	104	591
2014-15	2009	87	90	97	96	98	105	104	591
2015-16	2010	87	90	97	96	98	105	104	591

STOW, MA  
ENROLLMENT PROJECTIONS - Straight Average

Method C - Straight Ten Year Method

Ten Year Data Base, Average of Nine Progression Ratios

Academic Year	K Cohort Birth Year	K Cohort Births	Kind.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	94	93	94	94	86	103	563
2003-04	1998	93	97	101	91	97	96	87	569
2004-05	1999	95	99	104	99	95	100	96	594
2005-06	2000	88	91	107	103	103	98	100	602
2006-07	2001	79	82	99	105	107	106	98	597
2007-08	2002	87	90	89	97	109	110	106	602
2008-09	2003	87	90	98	87	101	112	110	599
2009-10	2004	87	90	98	96	91	104	112	591
2010-11	2005	87	90	98	96	100	93	104	581
2011-12	2006	87	90	98	96	100	103	93	580
2012-13	2007	87	90	98	96	100	103	103	590
2013-14	2008	87	90	98	96	100	103	103	590
2014-15	2009	87	90	98	96	100	103	103	590
2015-16	2010	87	90	98	96	100	103	103	590

STOW, MA  
ENROLLMENT PROJECTIONS - Straight Average

Method D - Adjusted Seven Year Method

Seven Year Data Base, High and Low Ratios Deleted, Average of Four Progression Ratios

Academic Year	K Cohort Birth Year	K Cohort Births	Kind.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	96	93	93	93	87	102	563
2003-04	1998	93	99	104	91	95	96	86	571
2004-05	1999	95	101	107	101	94	98	95	596
2005-06	2000	88	94	110	105	104	97	98	606
2006-07	2001	79	84	101	107	108	107	96	603
2007-08	2002	87	92	91	99	110	111	107	610
2008-09	2003	87	92	100	89	102	113	110	607
2009-10	2004	87	92	100	98	91	105	113	600
2010-11	2004	87	92	100	98	101	94	104	590
2011-12	2006	87	92	100	98	101	104	94	589
2012-13	2007	87	92	100	98	101	104	103	598
2013-14	2008	87	92	100	98	101	104	103	598
2014-15	2009	87	92	100	98	101	104	103	598
2015-16	2010	87	92	100	98	101	104	103	598

STOW, MA  
ENROLLMENT PROJECTIONS - Straight Average

Method E - Adjusted Twelve Year Method

Twelve Year Data Base, High and Low Ratios Deleted, Average of Nine Progression Ratios

Academic Year	K Cohort Birth Year	K Cohort Births	Kind.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	94	92	93	92	86	102	559
2003-04	1998	93	97	100	90	96	94	85	562
2004-05	1999	95	99	104	98	93	98	94	585
2005-06	2000	88	91	106	102	101	95	97	591
2006-07	2001	79	82	98	104	104	103	94	585
2007-08	2002	87	90	88	96	106	106	102	590
2008-09	2003	87	90	97	86	99	109	106	586
2009-10	2004	87	90	97	95	89	101	108	579
2010-11	2005	87	90	97	95	98	90	100	570
2011-12	2006	87	90	97	95	98	100	90	569
2012-13	2007	87	90	97	95	98	100	99	578
2013-14	2008	87	90	97	95	98	100	99	578
2014-15	2009	87	90	97	95	98	100	99	578
2015-16	2010	87	90	97	95	98	100	99	578

STOW, MA  
ENROLLMENT PROJECTIONS - +1 Birth/Yr

Method A - Accentuated Trend Method

Five Year Data Base, Weighted Average of 4 Most Recent Ratios (4:3:2:1)

Academic Year	K Cohort Birth Year	Cohort Births	Kind.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	92	94	95	90	92	102	566
2003-04	1998	93	95	101	95	95	98	91	576
2004-05	1999	95	97	105	102	95	104	97	599
2005-06	2000	88	90	107	105	101	103	103	610
2006-07	2001	79	81	99	107	105	111	102	605
2007-08	2002	92	94	89	99	107	115	110	614
2008-09	2003	93	95	103	89	99	117	113	618
2009-10	2004	94	96	105	104	89	108	116	618
2010-11	2005	95	97	106	105	104	97	107	616
2011-12	2006	96	98	107	106	105	113	96	626
2012-13	2007	97	99	108	107	106	115	112	647
2013-14	2008	98	100	109	108	107	116	113	654
2014-15	2009	99	101	110	110	108	117	115	661
2015-16	2010	100	102	111	111	109	118	116	668

STOW, MA  
ENROLLMENT PROJECTIONS - +1 Birth/Yr

Method B - Straight Five Year Method  
Five Year Data Base, Average of Four Progression Ratios

Academic Year	K Cohort Birth Year	K Cohort Births	Kind.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	93	92	94	92	90	102	564
2003-04	1998	93	96	100	92	97	99	89	572
2004-05	1999	95	98	104	100	94	103	98	596
2005-06	2000	88	91	106	103	102	101	102	604
2006-07	2001	79	82	98	105	105	109	100	599
2007-08	2002	92	95	88	97	107	113	108	609
2008-09	2003	93	96	102	87	100	115	112	612
2009-10	2004	94	97	104	102	89	107	114	613
2010-11	2005	95	98	105	103	104	96	106	611
2011-12	2006	96	99	106	104	105	111	95	621
2012-13	2007	97	100	107	105	106	113	110	642
2013-14	2008	98	102	108	106	107	114	112	649
2014-15	2009	99	103	109	107	109	115	113	655
2015-16	2010	100	104	110	108	110	116	114	662

STOW, MA  
ENROLLMENT PROJECTIONS - +1 Birth/Yr

Method C - Straight Ten Year Method

Ten Year Data Base, Average of Nine Progression Ratios

Academic Year	K Cohort Birth Year	K Cohort Births	KInd.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	94	93	94	94	86	103	563
2003-04	1998	93	97	101	91	97	96	87	569
2004-05	1999	95	99	104	99	95	100	96	594
2005-06	2000	88	91	107	103	103	98	100	602
2006-07	2001	79	82	99	105	107	106	98	597
2007-08	2002	92	96	89	97	109	110	106	607
2008-09	2003	93	97	103	87	101	112	110	610
2009-10	2004	94	98	104	102	91	104	112	611
2010-11	2005	95	99	105	103	106	93	104	610
2011-12	2006	96	100	107	104	107	109	93	619
2012-13	2007	97	101	108	105	108	110	109	640
2013-14	2008	98	102	109	106	109	111	110	647
2014-15	2009	99	103	110	107	110	112	111	654
2015-16	2010	100	104	111	108	111	113	112	660

STOW, MA  
ENROLLMENT PROJECTIONS - +1 Birth/Yr

Method D - Adjusted Seven Year Method

Seven Year Data Base, High and Low Ratios Deleted, Average of Four Progression Ratios

Academic Year	K Cohort Birth Year	K Cohort Births	Kind.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	96	93	93	93	87	102	563
2003-04	1998	93	99	104	91	95	96	86	571
2004-05	1999	95	101	107	101	94	98	95	596
2005-06	2000	88	94	110	105	104	97	98	606
2006-07	2001	79	84	101	107	108	107	96	603
2007-08	2002	92	98	91	99	110	111	107	615
2008-09	2003	93	99	106	89	102	113	110	619
2009-10	2004	94	100	107	103	91	105	113	620
2010-11	2004	95	101	108	105	106	94	104	619
2011-12	2006	96	102	110	106	108	110	94	628
2012-13	2007	97	103	111	107	109	111	109	649
2013-14	2008	98	104	112	108	110	112	110	656
2014-15	2009	99	105	113	109	111	113	111	663
2015-16	2010	100	106	114	110	112	115	113	670

STOW, MA  
ENROLLMENT PROJECTIONS - +1 Birth/Yr

Method E - Adjusted Twelve Year Method

Twelve Year Data Base, High and Low Ratios Deleted, Average of Nine Progression Ratios

Academic Year	K Cohort Birth Year	K Cohort Births	Kind.	1	2	3	4	5	Total
1999-00	1994	84	82	85	87	71	98	92	515
2000-01	1995	78	84	89	87	88	75	99	522
2001-02	1996	87	86	95	90	84	103	73	531
2002-03	1997	90	94	92	93	92	86	102	559
2003-04	1998	93	97	100	90	96	94	85	562
2004-05	1999	95	99	104	98	93	98	94	585
2005-06	2000	88	91	106	102	101	95	97	591
2006-07	2001	79	82	98	104	104	103	94	585
2007-08	2002	92	96	88	96	106	106	102	595
2008-09	2003	93	97	102	86	99	109	106	598
2009-10	2004	94	98	104	100	89	101	108	599
2010-11	2005	95	99	105	102	103	90	100	598
2011-12	2006	96	100	106	103	104	105	90	607
2012-13	2007	97	101	107	104	105	106	104	628
2013-14	2008	98	102	108	105	106	108	106	634
2014-15	2009	99	103	109	106	108	109	107	641
2015-16	2010	100	104	110	107	109	110	108	648



## Educational Specifications

An analysis was performed to determine the current educational program, as well as the number, type, and size of spaces in use. These are charted and compared with Department of Education Standards in section 5, Educational Space Assessment. Using this analysis; and through conversations with the Superintendent, Principal and Staff, provisional educational specifications were developed for the two most likely planning options as follows:

- 4A: Additions and renovations to two schools
  - Existing Pompositticut to be grades PK through 1
  - Existing Center to be grades 2 through 5
- 5A: New construction of one school
  - PK through 5 school on the Center School site

Provisional Educational Specifications are attached for each of the above planning options.

Commonwealth of Massachusetts  
DEPARTMENT OF EDUCATION  
School Building Assistance  
Elementary School Education Specifications

Date \_\_\_\_\_ Version # \_\_\_\_\_

School District \_\_\_\_\_ /Code \_\_\_\_\_

School Name **Pompositticut (Option-4A)** /Code \_\_\_\_\_

Contact Person **Keith Hoffses** Title **Architect**

Address **Design Partnership of Cambridge, Inc.**

**500 Rutherford Ave, Charlestown, MA** Telephone **617-241-9800**

Type of Proposed Construction: New \_\_\_\_\_ Addition **X** Renovation **X**

Complete the following for all addition and/or renovation projects.

Date of original construction **1971**. Reopen? Y \_\_\_\_\_ N **X**

Date(s) of addition(s): \_\_\_\_\_

Date(s) of SBA funded Renovations: \_\_\_\_\_

Site Location: \_\_\_\_\_ Acres: \_\_\_\_\_

Grade in Attendance (circle): \_\_\_\_\_ grades Pre-K through 1

School Consolidation/Grade Reorganization: Y \_\_\_\_\_ N \_\_\_\_\_ If yes, describe before/after conditions below:

**Enrollment Data (\*Full Time Equivalent)**  
(For part time students - 1/2 day Kindergarten, divide enrollment by 2)

Current (10 / 1 / 2002)		
Grade Level	Head Count	FTE*
Pre-K		
Kindergarten	86	52
Ungraded		
Grades 1 to 2	185	185
Collaboratives		
<b>Total</b>	<b>271</b>	<b>237</b>

Projected (10 / 1 / 2012)		
Grade Level	Head Count	FTE*
Pre-K	20	20
Kindergarten	122	122
Ungraded		
Grade 1	121	121
Collaboratives		
<b>Total</b>	<b>263</b>	<b>263</b>

Column (I) indicates new spaces to be added; New school, complete Column I only.

Column (II) for existing spaces after renovations; for renovation only, complete Column II.

Column (III) total spaces needed for approved educational program. (I)+(II) must = Column (III) for additions.

Please note the footnotes on each page to insure correct space computations per Regulations. The recommended classroom sizes (in parentheses) exclude storage, teacher area and wall thickness. [The gross square footage in each column below should include storage and teacher area, but not wall thickness and therefore may exceed the recommended square footage (net sq. ft.). Please put an asterisk to indicate teacher/storage area included]\*

TABLE A	(I) Additional Space (New Construction)		(II) Existing Space (After Renovations)		(III) Total Space (Educational)	
	No.	Sq.Ft.	No.	Sq.Ft.	No.	Sq.Ft.
<b>A. Basic Educational Space</b>						
1. Pre-K (1200-1300)	1	1,250			1	1,250
2. Kindergarten (1200-1300)	2	2,500	5	6,250	7	8,750
3. General Class (900-1000)	6	5,700			6	5,700
4. Art (1000-1200)			1	1,200	1	1,200
5. Music (1000-1200)			1	1,200	1	1,200
a. Ensemb (up to 200)					0	0
b. Practice (75-130)					0	0
6. Science/Computer (1000-1200)			1	1,200	1	1,200
			1	1,000	1	1,000
7. Media Center/ Library (1800-3000)			1	2,500	1	2,500
8. Phys.Ed. Teaching Station (1800-3000)**			1	3,100	1	3,100
9. Special Needs Learning Center	1	950			1	950
Off./Test/Conf.	3	600			3	600
Occup. Therapy			1	500	1	500
10. Remedial Reading	1	600			1	600
Reading Office	1	150			1	150
Speech	1	200			1	200
11. Collaborative (as needed)					0	0
<b>A. SUBTOTAL Basic Space</b>		11,950		16,950	0	28,900

\*Includes storage but not wall thickness

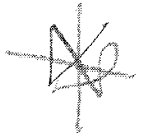
\*\* Lockers and storage under miscellaneous space.

TABLE B	(I) Additional Space (New Construction)		(II) Existing Space After Renovations		(III) Total Space (Educational)	
B. Miscellaneous Educational Space (in Regulations)	No.	Sq. Ft.	No.	Sq. Ft.	No.	Sq. Ft.
1. Cafeteria + Seating		(shared gymnasium)			(shared gymnasium)	
2. Cafetorium + Seating					0	0
Stage	****		***		*****	0
3. Guidance						
a. Office			1	400	1	400
b. Counseling					0	0
c. Waiting (as needed)					0	0
4. Health Suite						
a. Office	1	500			1	500
b. Examining Rm.					0	0
c. Rest Areas (300-750)					0	0
5. Kitchen (warming)			1	800	1	800
6. Administration						
a. Principal					0	0
b. Asst. Principal					0	0
c. Gen. Office					0	0
d. Conference					0	0
e. Other (up to 800)	1	800			1	800
7. Planning Room			1	400	1	400
8. Teachers' Dining			1	400	1	400
9. Auditorium +++ Seating					0	0
Stage	****		****		*****	
10. Physical Ed.						
a. Locker Rms.					0	0
b. Storage			1	200	1	200
B. SUBTOTAL Misc. Educ. Space		1,300		2,200	0	3,500

+15 square feet per pupil for 1/2 or 1/3 of the enrollment at each seating

++For full service kitchen allow 1300 sq. ft. for the first 300 meals, plus 1 sq. ft. for each additional meal serviced.

+++7 Sq.Ft. per pupil for seating; stage square footage additional. For service kitchen only, allow 800 sq. ft.



### C. SUMMARY OF SPACES FOR MAXIMUM CONSTRUCTION COST ALLOWANCE

Table C summarizes the square footage of the educational program space in Tables A and B to determine the maximum allowable cost for the proposed school project.

TABLE C Description of Space	(I) Additional Space (New Construction)		(II) Existing Space After Renovations		(III) Total Planned Space	
	Sq. Ft.	%	Sq. Ft.	%	Sq. Ft.	%
1. Basic Educational	11,950		16,950		28,900	
2. Miscellaneous Educational	1,300		2,200		3,500	
3. SUBTOTAL (Basic+Misc.)	13,250		19,150		32,400	
4. Other Space						
5. TOTAL Gross (Educational + Other)						

### D. MAXIMUM ALLOWABLE SQUARE FOOTAGE

The allowable square feet per pupil as provided for in the School Construction Regs is 115 for elementary schools. The following other spaces may be approved in excess of this base and should be included in the table above. (Preliminary Drawings: to define 'other space' use the following color codes)

Special Needs: (Yellow)	Sq. Ft.	Collaboratives: (Yellow)	Sq. Ft.
TBE: (Blue)	Sq. Ft.	Community: (Red)	Sq. Ft.
Remedial: (Green)	Sq. Ft.	Technology: (Tangerine)	Sq. Ft.

Total Allowable Square feet in Excess of Base: \_\_\_\_\_ Sq.Ft.

### E. MAXIMUM ALLOWABLE CONSTRUCTION COST

The cost allowed per square foot for new school construction is published in the regulations and updated annually. Renovation costs vary widely depending on the age and overall condition of the existing schoolhouse and will be reviewed on an individual basis with SBA staff. \*Capital construction projects may also include not more than \$115 per sq. ft. for furnishings and equipment

**\$15**

1. (\_\_\_\_\_ x 115) + \_\_\_\_\_ Sq.Ft. = \_\_\_\_\_ Sq.Ft.

(Projected Enrollment x 115) + Total Approved Excess (table D) = Maximum Gross Sq. Ft.

2. 158.00 x \_\_\_\_\_ Sq.Ft. = \$ \_\_\_\_\_ New  
Allowable Cost per Sq.Ft. x Gross Sq.Ft. New = Maximum Allowance Cost New

3. \$ \_\_\_\_\_ x \_\_\_\_\_ Sq.Ft. = \$ \_\_\_\_\_ Renovation  
Allowable Cost per Sq.Ft. x Renovated Sq.Ft. = Allowance for Renovations

= \$ \_\_\_\_\_  
= MAXIMUM ALLOWABLE COST

Commonwealth of Massachusetts  
DEPARTMENT OF EDUCATION  
School Building Assistance  
Elementary School Education Specifications

Date \_\_\_\_\_ Version # \_\_\_\_\_

School District \_\_\_\_\_ /Code \_\_\_\_\_

School Name **Center (Option-4A)** /Code \_\_\_\_\_

Contact Person \_\_\_\_\_ Keith Hoffses Title \_\_\_\_\_ Architect

Address \_\_\_\_\_ Design Partnership of Cambridge, Inc.

\_\_\_\_\_ 500 Rutherford Ave, Charlestown, MA Telephone 617-241-9800

Type of Proposed Construction: New \_\_\_\_\_ Addition X Renovation X

Complete the following for all addition and/or renovation projects.

Date of original construction 1954 . Reopen? Y    N X

Date(s) of addition(s): 1957 , 1964 , \_\_\_\_\_

Date(s) of SBA funded Renovations: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Site Location: \_\_\_\_\_ Acres: \_\_\_\_\_

Grade in Attendance (circle): \_\_\_\_\_ grades 2 through 5

School Consolidation/Grade Reorganization: Y    N    If yes, describe before/after conditions below:

Enrollment Data (\*Full Time Equivalent)  
(For part time students - 1/2 day Kindergarten, divide enrollment by 2)

Current (10 / 1 / 2002)		
Grade Level	Head Count	FTE*
Pre-K		
Kindergarten		
Ungraded		
Grades 3 to 5	260	260
Collaboratives		
Total	260	260

Projected (10 / 1 / 2012)		
Grade Level	Head Count	FTE*
Pre-K		
Kindergarten		
Ungraded		
Grades 2 to 5	485	485
Collaboratives		
Total	485	485

Column (I) indicates new spaces to be added; New school, complete Column I only.

Column (II) for existing spaces after renovations; for renovation only, complete Column II.

Column (III) total spaces needed for approved educational program. (I)+(II) must = Column (III) for additions.

Please note the footnotes on each page to insure correct space computations per Regulations. The recommended classroom sizes (in parentheses) exclude storage, teacher area and wall thickness. [The gross square footage in each column below should include storage and teacher area, but not wall thickness and therefore may exceed the recommended square footage (net sq. ft.). **Please put an asterisk to indicate teacher/storage area included**]\*

TABLE A		(I) Additional Space (New Construction)		(II) Existing Space (After Renovations)		(III) Total Space (Educational)	
A. Basic Educational Space		No.	Sq.Ft.	No.	Sq.Ft.	No.	Sq.Ft.
1. Pre-K (1200-1300)						0	0
2. Kindergarten (1200-1300)						0	0
3. General Class (900-1000)		11	10,450	13	11,570	24	22,020
Health		1	950			1	950
4. Art (1000-1200)		1	1,200			1	1,200
5. Music (1000-1200)		1	1,200			1	1,200
a. Ensemb (up to 200)						0	0
b. Practice (75-130)						0	0
6. Science/Computer (1000-1200)		1	1,200			1	1,200
		1	1,000			1	1,000
7. Media Center/ Library (1800-3000)		1	3,000			1	3,000
8. Phys.Ed. Teaching Station (1800-3000)**		2	6,000			2	6,000
9. Special Needs SPED Classroom				1	950	1	950
Learning Center				1	950	1	950
Off./Test/Conf.		1	400	1	200	2	600
Occup. Therapy		1	500			1	500
10. Remedial Reading				1	400	1	400
Speech		1	200			1	200
11. Collaborative (as needed)						0	0
A. SUBTOTAL Basic Space			26,100		14,070	0	40,170

\*Includes storage but not wall thickness

\*\* Lockers and storage under miscellaneous space.

TABLE B	(I) Additional Space (New Construction)		(II) Existing Space After Renovations		(III) Total Space (Educational)	
B. Miscellaneous Educational Space (in Regulations)	No.	Sq. Ft.	No.	Sq. Ft.	No.	Sq. Ft.
1. Cafeteria + Seating					0	0
2. Cafetorium + Seating		(shared gymnasium)			(shared gymnasium)	
Stage	****	1,400	***		*****	1,400
3. Guidance						
a. Office	1	400			1	400
b. Counseling					0	0
c. Waiting (as needed)					0	0
4. Health Suite						
a. Office			1	500	1	500
b. Examining Rm.					0	0
c. Rest Areas (300-750)					0	0
5. Kitchen ++	1	1,607			1	1,607
6. Administration						
a. Principal					0	0
b. Asst. Principal					0	0
c. Gen. Office					0	0
d. Conference					0	0
e. Other (up to 800)			1	800	1	800
7. Planning Room	1	200		200	1	400
8. Teachers' Dining	1	400			1	400
9. Auditorium +++ Seating					0	0
Stage	****		****		*****	
10. Physical Ed.						
a. Locker Rms.					0	0
b. Storage	1	200			1	200
B. SUBTOTAL Misc. Educ. Space		4,207		1,500	0	5,707

+15 square feet per pupil for 1/2 or 1/3 of the enrollment at each seating

++For full service kitchen allow 1300 sq. ft. for the first 300 meals, plus 1 sq. ft. for each additional meal serviced.

+++7 Sq.Ft. per pupil for seating; stage square footage additional. For service kitchen only, allow 800 sq. ft.

### C. SUMMARY OF SPACES FOR MAXIMUM CONSTRUCTION COST ALLOWANCE

Table C summarizes the square footage of the educational program space in Tables A and B to determine the maximum allowable cost for the proposed school project.

TABLE C Description of Space	(I) Additional Space (New Construction)		(II) Existing Space After Renovations		(III) Total Planned Space	
	Sq. Ft.	%	Sq. Ft.	%	Sq. Ft.	%
1. Basic Educational	26,100		14,070		40,170	
2. Miscellaneous Educational	4,207		1,500		5,707	
3. SUBTOTAL (Basic+Misc.)	30,307		15,570		45,877	
4. Other Space						
5. TOTAL Gross (Educational + Other)						

### D. MAXIMUM ALLOWABLE SQUARE FOOTAGE

The allowable square feet per pupil as provided for in the School Construction Regs is 115 for elementary schools. The following other spaces may be approved in excess of this base and should be included in the table above. (Preliminary Drawings: to define 'other space' use the following color codes)

Special Needs: (Yellow)	Sq. Ft.	Collaboratives: (Yellow)	Sq. Ft.
TBE: (Blue)	Sq. Ft.	Community: (Red)	Sq. Ft.
Remedial: (Green)	Sq. Ft.	Technology: (Tangerine)	Sq. Ft.

Total Allowable Square feet in Excess of Base: \_\_\_\_\_ Sq.Ft.

### E. MAXIMUM ALLOWABLE CONSTRUCTION COST

The cost allowed per square foot for new school construction is published in the regulations and updated annually. Renovation costs vary widely depending on the age and overall condition of the existing schoolhouse and will be reviewed on an individual basis with SBA staff. \*Capital construction projects may also include not more than \$115 per sq. ft. for furnishings and equipment

1. (\_\_\_\_\_ x 115) + \_\_\_\_\_ Sq.Ft. = \_\_\_\_\_ Sq.Ft.

(Projected Enrollment x 115) + Total Approved Excess (table D) = Maximum Gross Sq. Ft.

2. 158.00 x \_\_\_\_\_ Sq.Ft. = \$ \_\_\_\_\_ New  
Allowable Cost per Sq.Ft. x Gross Sq.Ft. New = Maximum Allowance Cost New

3. \$ \_\_\_\_\_ x \_\_\_\_\_ Sq.Ft. = \$ \_\_\_\_\_ Renovation  
Allowable Cost per Sq.Ft. x Renovated Sq.Ft. = Allowance for Renovations

= \$ \_\_\_\_\_  
= MAXIMUM ALLOWABLE COST

Commonwealth of Massachusetts  
DEPARTMENT OF EDUCATION  
School Building Assistance  
Elementary School Education Specifications

Date \_\_\_\_\_ Version # \_\_\_\_\_

School District \_\_\_\_\_ /Code \_\_\_\_\_

School Name **Combined (Option-5A)** /Code \_\_\_\_\_

Contact Person \_\_\_\_\_ Keith Hoffses Title \_\_\_\_\_ Architect

Address \_\_\_\_\_ Design Partnership of Cambridge, Inc.

500 Rutherford Ave, Charlestown, MA

Telephone 617-241-9800

Type of Proposed Construction: New \_\_\_\_\_ Addition X Renovation X

Complete the following for all addition and/or renovation projects.

Date of original construction \_\_\_\_\_ Reopen? Y \_\_\_ N \_\_\_

Date(s) of addition(s): \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Date(s) of SBA funded Renovations: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Site Location: \_\_\_\_\_ Acres: \_\_\_\_\_

Grade in Attendance (circle): \_\_\_\_\_ grades Pre-K through 5

School Consolidation/Grade Reorganization: Y \_\_\_ N \_\_\_ If yes, describe before/after conditions below:

Enrollment Data (\*Full Time Equivalent)  
(For part time students - 1/2 day Kindergarten, divide enrollment by 2)

Current (10 / 1 / 2002)		
Grade Level	Head Count	FTE*
Pre-K		
Kindergarten	86	52
Ungraded		
Grades 1 to 5	445	445
Collaboratives		
Total	531	497

Projected (10 / 1 / 2012)		
Grade Level	Head Count	FTE*
Pre-K	20	20
Kindergarten	122	122
Ungraded		
Grades 2 to 5	606	606
Collaboratives		
Total	748	748

Column (I) indicates new spaces to be added; New school, complete Column I only.

Column (II) for existing spaces after renovations; for renovation only, complete Column II.

Column (III) total spaces needed for approved educational program. (I)+(II) must = Column (III) for additions.

Please note the footnotes on each page to insure correct space computations per Regulations. The recommended classroom sizes (in parentheses) **exclude storage, teacher area and wall thickness**. [The gross square footage in each column below should **include storage and teacher area, but not wall thickness** and therefore may exceed the recommended square footage (net sq. ft.). **Please put an asterisk to indicate teacher/storage area included**]\*

TABLE A	(I) Additional Space (New Construction)		(II) Existing Space (After Renovations)		(III) Total Space (Educational)	
	No.	Sq.Ft.	No.	Sq.Ft.	No.	Sq.Ft.
<b>A. Basic Educational Space</b>						
1. Pre-K (1200-1300)	1	1,250			1	1,250
2. Kindergarten (1200-1300)	7	8,750			7	8,750
3. General Class (900-1000)	30	28,500			30	28,500
Health	1	950			1	950
4. Art (1000-1200)	2	2,400			2	2,400
5. Music (1000-1200)	1	1,200			1	1,200
a. Ensemb (up to 200)					0	0
b. Practice (75-130)					0	0
6. Science/Computer (1000-1200)	2	2,400			2	2,400
	2	2,000			2	2,000
7. Media Center/ Library (1800-3000)	1	3,600			1	3,600
8. Phys.Ed. Teaching Station (1800-3000)**	2	6,000			2	6,000
9. Special Needs						
SPED Classroom	1	950			1	950
Learning Center	2	1,900			2	1,900
Off./Test/Conf.	4	800			4	800
Occup. Therapy	1	600			1	600
10. Remedial						
Reading	2	1,200			2	1,200
Speech	2	400			2	400
11. Collaborative (as needed)					0	0
<b>A. SUBTOTAL Basic Space</b>		<b>62,900</b>		<b>0</b>	<b>0</b>	<b>62,900</b>

\*Includes storage but not wall thickness

\*\* Lockers and storage under miscellaneous space.

TABLE B	(I) Additional Space (New Construction)		(II) Existing Space After Renovations		(III) Total Space (Educational)	
	No.	Sq. Ft.	No.	Sq. Ft.	No.	Sq. Ft.
<b>B. Miscellaneous Educational Space (in Regulations)</b>						
1. Cafeteria + Seating	1	<del>2,600</del> 3,100			1	<del>2,600</del> 3,100
2. Cafetorium + Seating					0	0
Stage	****	1,400	***		*****	1,400
3. Guidance						
a. Office	1	600			1	600
b. Counseling					0	0
c. Waiting (as needed)					0	0
4. Health Suite						
a. Office	1	700			1	700
b. Examining Rm.					0	0
c. Rest Areas (300-750)					0	0
5. Kitchen ++	1	1,607			1	1,607
6. Administration						
a. Principal					0	0
b. Asst. Principal					0	0
c. Gen. Office					0	0
d. Conference					0	0
e. Other (up to 800)	2	1,600			2	1,600
7. Planning Room	2	800			2	800
8. Teachers' Dining	1	600			1	600
9. Auditorium +++ Seating					0	0
Stage	****		****		*****	
10. Physical Ed.						
a. Locker Rms.					0	0
b. Storage	1	200			1	200
<b>B. SUBTOTAL Misc. Educ. Space</b>		<del>10,107</del> 10,607		0	0	<del>10,107</del> 10,607

+15 square feet per pupil for 1/2 or 1/3 of the enrollment at each seating

++For full service kitchen allow 1300 sq. ft. for the first 300 meals, plus 1 sq. ft. for each additional meal serviced.

+++7 Sq.Ft. per pupil for seating; stage square footage additional. For service kitchen only, allow 800 sq. ft.

### C. SUMMARY OF SPACES FOR MAXIMUM CONSTRUCTION COST ALLOWANCE

Table C summarizes the square footage of the educational program space in Tables A and B to determine the maximum allowable cost for the proposed school project.

TABLE C	(I) Additional Space (New Construction)		(II) Existing Space After Renovations		(III) Total Planned Space	
Description of Space	Sq. Ft.	%	Sq. Ft.	%	Sq. Ft.	%
1. Basic Educational	62,900		0		62,900	
2. Miscellaneous Educational	10,607 <del>10,107</del>		0		10,607 <del>10,107</del>	
3. SUBTOTAL (Basic+Misc.)	73,507 <del>73,007</del>		-		73,507 <del>73,007</del>	
4. Other Space						
5. TOTAL Gross (Educational + Other)						

### D. MAXIMUM ALLOWABLE SQUARE FOOTAGE

The allowable square feet per pupil as provided for in the School Construction Regs is 115 for elementary schools. The following other spaces may be approved in excess of this base and should be included in the table above. (Preliminary Drawings: to define 'other space' use the following color codes)

Special Needs: (Yellow)	Sq. Ft.	Collaboratives: (Yellow)	Sq. Ft.
TBE: (Blue)	Sq. Ft.	Community: (Red)	Sq. Ft.
Remedial: (Green)	Sq. Ft.	Technology: (Tangerine)	Sq. Ft.

Total Allowable Square feet in Excess of Base: \_\_\_\_\_ Sq.Ft.

### E. MAXIMUM ALLOWABLE CONSTRUCTION COST

The cost allowed per square foot for new school construction is published in the regulations and updated annually. Renovation costs vary widely depending on the age and overall condition of the existing schoolhouse and will be reviewed on an individual basis with SBA staff. \*Capital construction projects may also include not more than \$115 per sq. ft. for furnishings and equipment

\$15

1. (\_\_\_\_\_ x 115) + \_\_\_\_\_ Sq.Ft. = \_\_\_\_\_ Sq.Ft.

(Projected Enrollment x 115) + Total Approved Excess (table D) = Maximum Gross Sq. Ft.

2. 158.00 x \_\_\_\_\_ Sq.Ft. = \$ \_\_\_\_\_ New  
Allowable Cost per Sq.Ft. x Gross Sq.Ft. New = Maximum Allowance Cost New

3. \$ \_\_\_\_\_ x \_\_\_\_\_ Sq.Ft. = \$ \_\_\_\_\_ Renovation  
Allowable Cost per Sq.Ft. x Renovated Sq.Ft. = Allowance for Renovations

= \$ \_\_\_\_\_  
= MAXIMUM ALLOWABLE COST



## Planning Options

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### Assumptions

In order to evaluate the various options to address space and infrastructure needs, Design Partnership has analyzed the existing building and site, and compared how each can accommodate the needs defined by the developed educational specification. Certain assumptions have been used to maintain a balance among the possible choices and strategies. The more important of these are listed below.

1. All options are designed to be eligible for inclusion in the Massachusetts School Building Assistance program. The primary requirements for eligibility are rooms of a number and size to meet educational specifications and SBA area guidelines, full code compliance (including 100% barrier-free access) and utilization of materials and systems which can reasonably be presumed to have a 50-year useful life span.
2. Options reusing all or part of the existing facility are designed with minimum compromise of space and/or adjacency (location) relative to that which is achievable with new construction. Existing construction, systems and finishes are upgraded to be comparable with new construction.
3. All building plan options provide the proper quantity and grouping of spaces to support the educational concepts.
4. In all options, siting of the building respects applicable zoning requirements; wetlands buffer zones, and as far as known, well influence radii. Site boundaries are unchanged. Maximizing safety via site traffic patterns, which separate of car and bus traffic was explored, and 360 degree access around the schools for emergency vehicles maintained. Play areas were maintained or relocated.
5. All options include consideration of phasing and accommodation of students and educational programs during construction.

### Objectives

X D Through a process of faculty, staff and administration interviews, Design Partnership was informed of the educational program currently in place, as well as new and/or expanded programs that would be desirable if space were available. For example, a full day kindergarten program is desired, as well as bringing pre-kindergarten and special education pre-kindergarten back to the community. Kitchen services would be better addressed with a full-service kitchen located at one of the elementary schools. Provisional Educational Specifications (see Section 7) were developed using these criteria, as well as

Enrollment Projections (see Section 6), and Department of Education standards.

As alluded to previously, options reusing all or part of the existing facility are predicated on the requirement that new and renovated space shall be essentially equal in amenity and longevity. Further, it is a requirement that compromises of room size, room shape and suitable/ideal adjacencies be minimized when utilizing existing construction versus new. SBA guidelines, recommendations and requirements for number and size of spaces are adhered to throughout.

Each option is required to be feasible as regards implementation and phasing, providing for the safe and appropriate housing of the students and the uninterrupted and undiluted continuation of all academic programs.

### **Building & Site Planning Options**

Initially, to span the minimum and maximum extremes of planning options, Design Partnership investigated the following:

- **Option 1:** additions and renovations to both schools, Pompo PreK-2, and Center 3-5
- **Option 2:** a new two story PreK through 5 school on the Center School site with the new building near the present building location in the southeast corner of the site (major additions toward the east)

After discussion of these options the School Building Committee requested further development of Options 1 and 2, as well as exploration of the following additional options. These are as follows:

- ✓ • **Option 1A:** additions and renovations to both schools, Pompo PreK-2, and Center 3-5 with the building additions respecting wetland buffer zones
- **Option 2A:** a new two story PreK through 5 school on the Center School site with the building more compact southeast corner of the site (major additions toward the west)
- **Option 3A:** a new PreK-2 Pompositticut School and additions and renovations to a 2-5 Center School
- ➡ • **Option 4A:** additions and renovations to both schools, Pompo PreK-1, and Center 2-5

- **Option 5A:** a new two story PreK through 5 school on the Center School site with the building located in the northwest corner of the site, away from the existing building

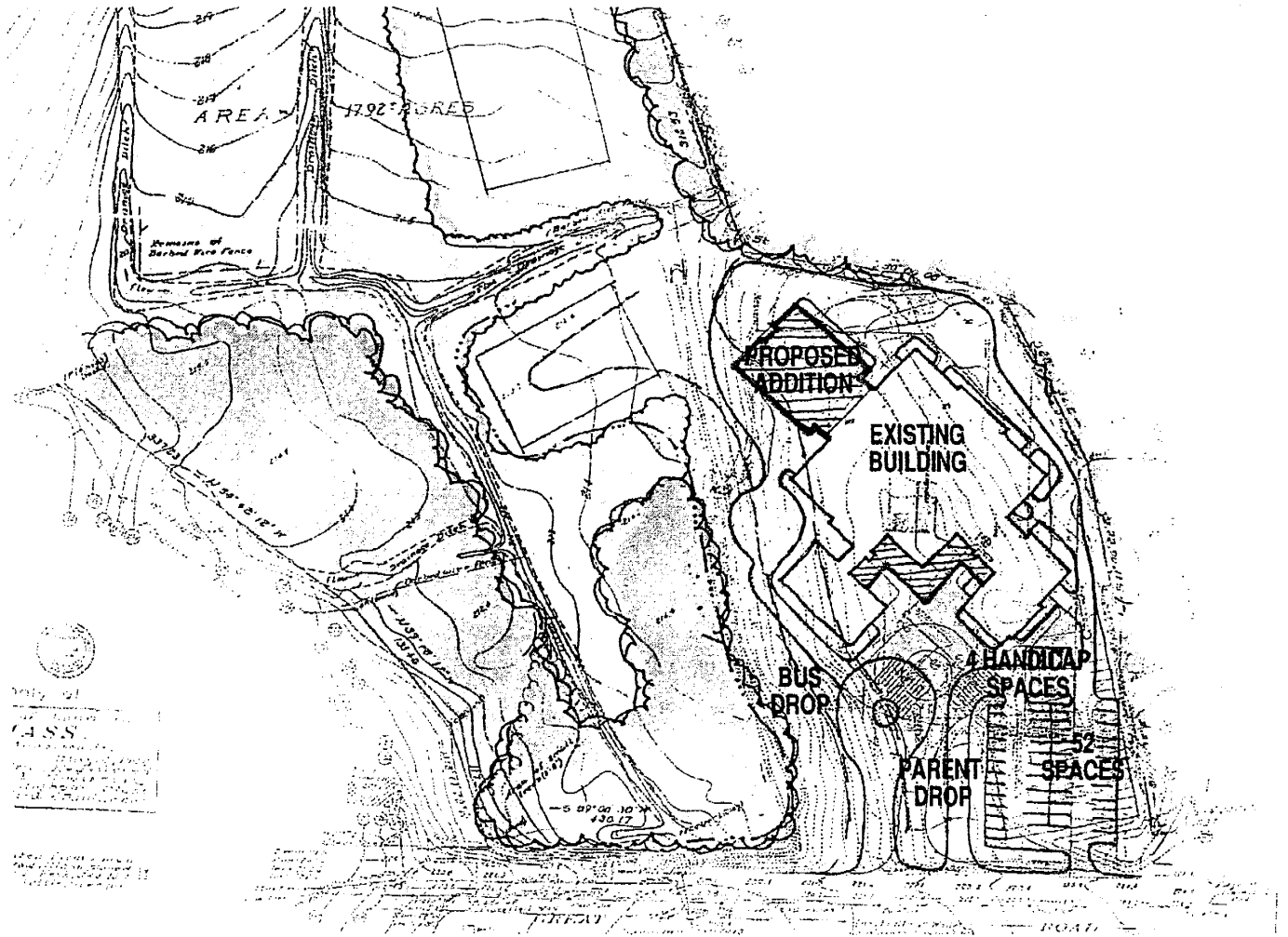
In a subsequent meeting with the School Building Committee Options 1A and 3A were eliminated due to cost and major site impacts affecting parking, playareas, and vehicular/pedestrian circulation at the Pompositticut. The new PK-5 Center School Option 2A was eliminated due to cost and phasing issues in favor of further pursuit of the new PK-5 Center School Option 5A, which and can be constructed with minimal, or no phasing, due to building location. By housing grades PreK-1 at the Pompositticut site, Option 4A minimizes student population levels as compared with other options, and also, as the least-cost option was deemed worthy of further exploration. The Committee requested the existing stone building be addressed in further development of Options 4A and 5A. Most recent discussions included the following further-refined options:

- **Option 4A.1:** In this option, the existing grade levels attending the Pompositticut are changed from the present K-2 to PreK through 1. This allows renovation with a modest single story classroom wing and administration area expansion, which is desirable due to site constraints. A renovated and expanded Center School would house grades 2 through 5 (currently Center School houses grades 3 - 5), as the Center School site can more easily accommodate a larger expansion.
- **Option 4A.2:** This option is identical to Option 4A.1 except an existing single story wing at Pompositticut is demolished and replaced by a new two story wing. This allows most of the existing site to be left intact, as compared with Option 4A.1.
- **Option 5A.1:** This option contemplates an entirely new two-story school at the Center School site, housing grades PreK through 5, located in the northwest corner of the buildable site area.
- **Option 5A.2:** This option also explores an entirely new two-story school at the Center School site, housing grades PreK through 5. However the building is located to the west-center of the buildable site area (as compared with Option 5A.1 building location in the northwest corner).
- **Option 5A.3:** This option incorporates the same educational program as Option 5A.1 and 5A.2 above, but with 3 stories.
- **Option 5A.4:** This option also incorporates the same educational program as above, but in a single story.

Of the options presented above, Option 5A.3 was eliminated. Available fire-fighting apparatus cannot adequately reach the upper floor levels (maximum reach is 30 feet). Aesthetic and circulation concerns were considered as well.

Option 5A.4 was also eliminated. It takes up much of the site, leaving less room for appropriate vehicular/pedestrian circulation and play areas. At a population of 748, the single story necessitates lengthy corridors, which would impact student travel time to core facilities.

The attached conceptual Options 4A.1, 4A.2, 5A.1, and 5A.2 were considered worthy of further study. Preliminary cost estimates indicate that these options could be fairly equal to each other in cost.



# Pompositticut Site - Option 4A.1

Stow Elementary Schools

Stow, Massachusetts  
27 November 2002



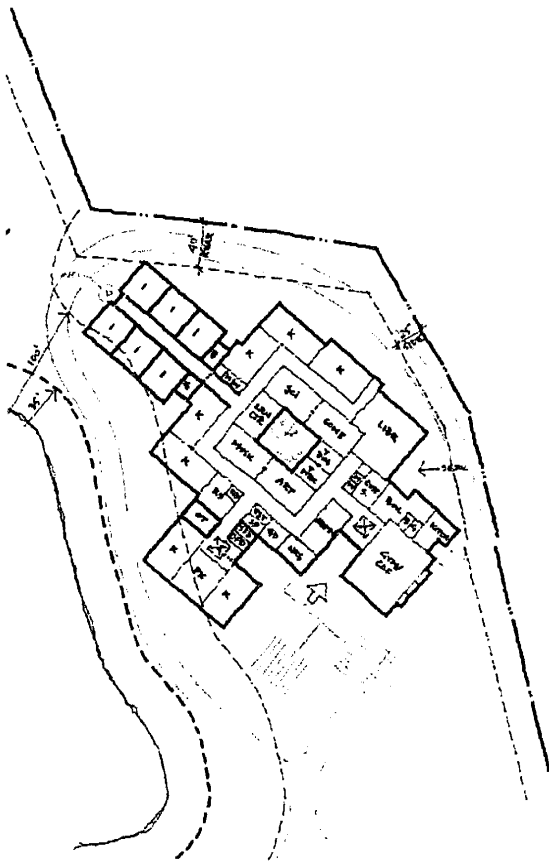
Designpartnership



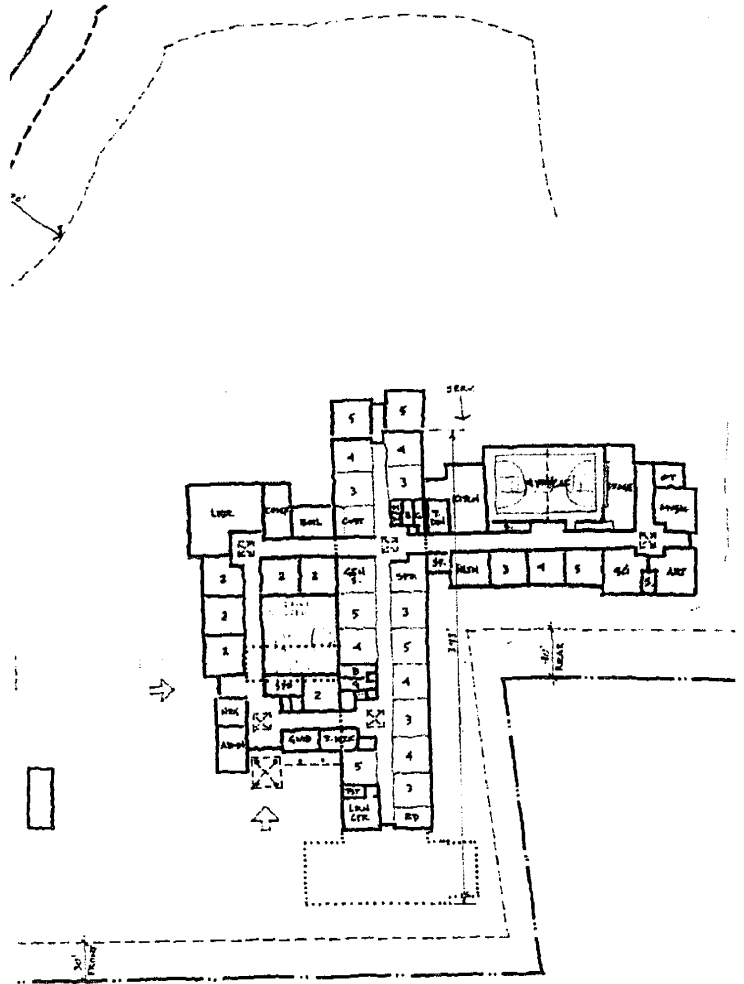
1000 BUSINESS PARK  
500 BLUMHARTS AVENUE  
CHARTERSTOWN, MA 02124  
TEL: 781/660-1517 FAX: 781/660-1518  
WWW.DGP.COM

ARCHITECTURAL  
PHOTOGRAPHY  
MASTER PLANNING  
INTERIOR DESIGN





Pompositticut  
(PK-1st)



Center  
(2nd-5th)

## Option 4A.1

### Stow Elementary Schools

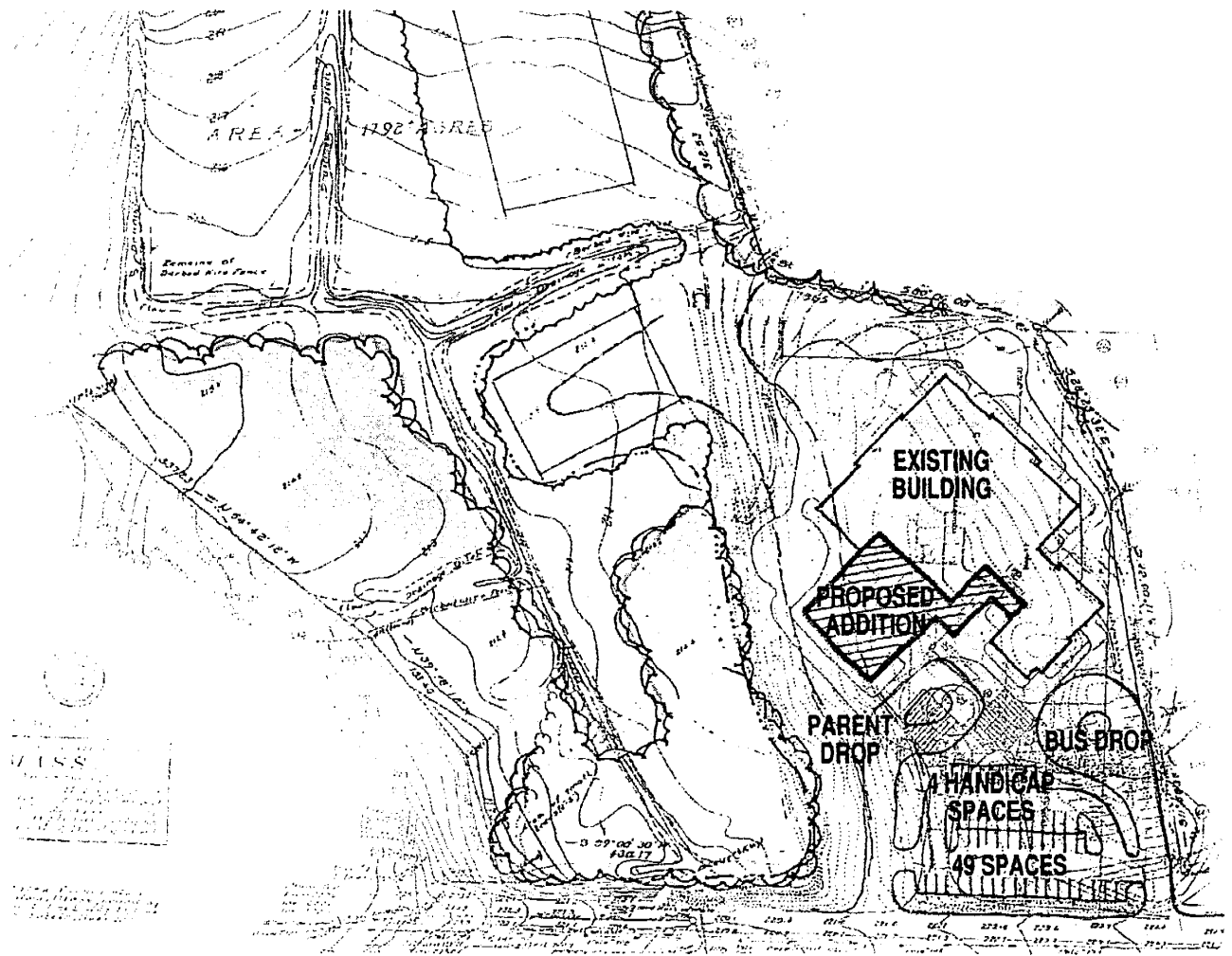
Stow, Massachusetts  
27 November 2002



Designpartnership

1000 B. STREET, SUITE 100  
STOW, MASSACHUSETTS 01770  
TEL: 978.247.8800 FAX: 978.247.8801  
WWW.DPARCH.COM

ARCHITECT  
PLANNING  
MASTER PLANNING  
INTERIOR DESIGN



# Pompositticut Site - Option 4A.2

Stow Elementary Schools

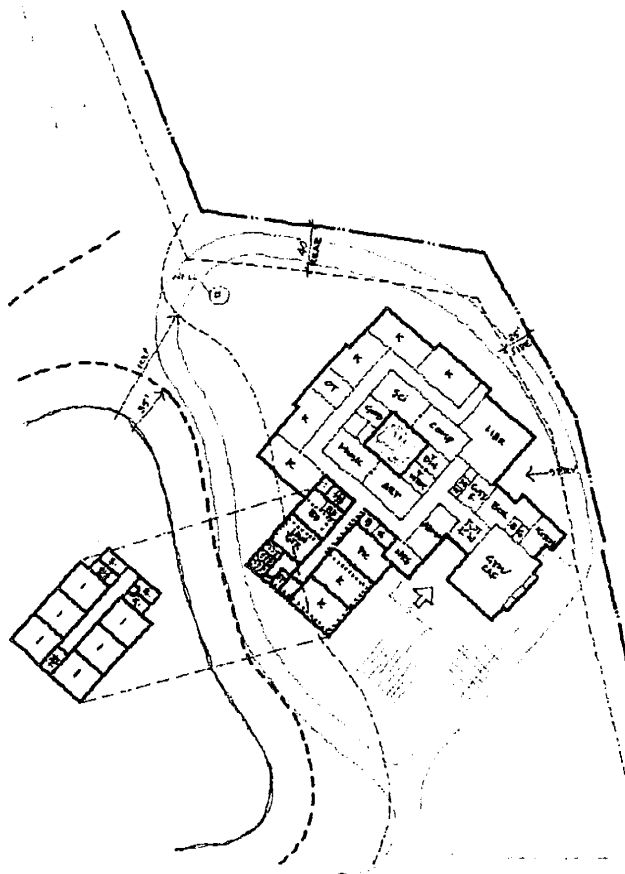
Stow, Massachusetts  
27 November 2002



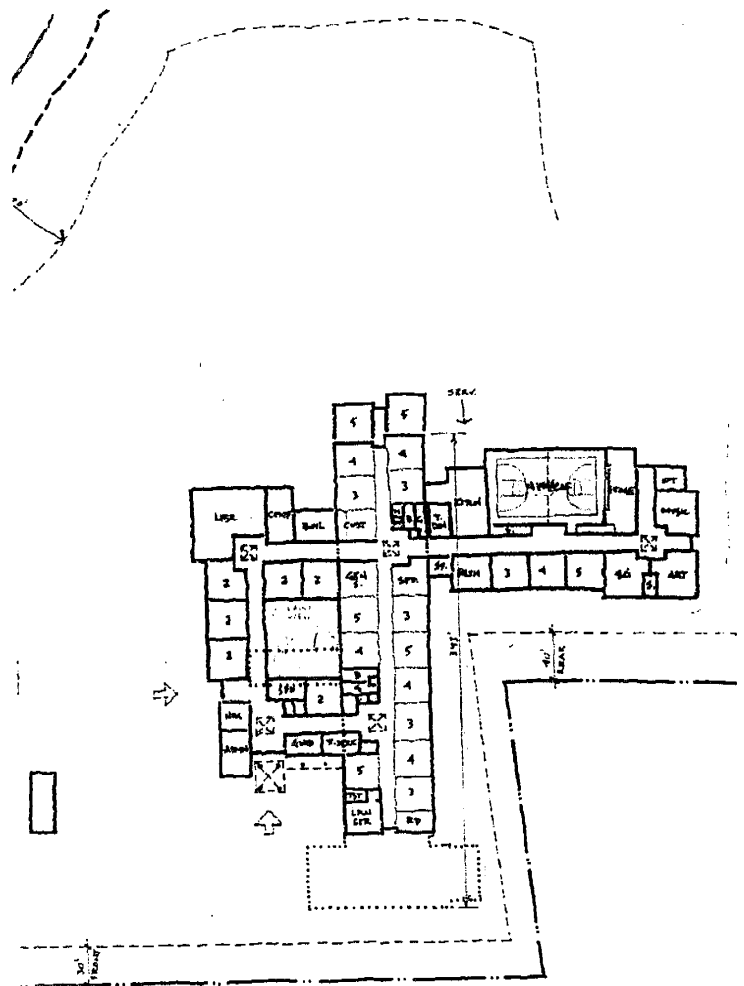
Designpartnership

1000 BUSINESS PARK  
100 RAILROAD AVENUE  
CHARLESTOWN, MA 02124  
1.617.241.8000 F. 617.241.3110  
WWW.DPSC.COM

ARCHITECTURE  
PUBLIC PLANNING  
MASTER PLANNING  
INTERIOR DESIGN



Pompositticut  
(PK-1st)



Center  
(2nd-5th)  
(same as 4A.1 plan)

## Option 4A.2

Stow Elementary Schools

Stow, Massachusetts  
27 November 2002



Designpartnership

1000 BUSINESS PARK  
500 ELTHAM AVENUE  
CHARLESTOWN, MA 02129  
TEL: 617 241 8000 FAX: 617 241 2110  
WWW.DPAC.COM

ARCHITECTURAL  
FLOOR PLANS  
MASTER PLANNING  
INTERIOR DESIGN

Stow Elementary Schools

Stow, MA

Feasibility Cost Estimate  
DPC, Inc.  
November 27, 2002

Option 4A1 less 9,000sf

Center School		37% Renovation / 63% Addition, 1 Story, Grades 2-5				Pompositticut School				74% Renovation / 26% Addition, 2 Story, Grades K-1 (+ 1 PK)			
		Design Enrollment: 485				Design Enrollment: 243 + 20				Gross Square Footage: Renovations 35,400			
		Gross Square Footage: Renovations 41,376				Gross Square Footage: Renovations 49,601				Gross Square Footage: New 8,225			
		Total Approximate CSF: 68,806				Total Approximate CSF: 43,625				Total Approximate CSF: 43,625			

Stow Elementary Schools  
Stow, MA

Feasibility Cost Estimate  
DPC, Inc.  
November 27, 2002

Option 4A1:

Center School		74% Renovation / 26% Addition, 2 Story, Grades K-1 (+ 1 PK)		Pompositticut School	
37% Renovation / 63% Addition, 1 Story, Grades 2-5		Design Enrollment: 243+20		Design Enrollment: 243+20	
Design Enrollment: 485		Gross Square Footage: Renovations 27,430		Gross Square Footage: Renovations 35,400	
Gross Square Footage: New 46,376		Gross Square Footage: New 12,225		Gross Square Footage: New 12,225	
Total Approximate GSF: 73,806		Total Approximate GSF: 47,625		Total Approximate GSF: 47,625	
		\$/sf	Renovations	\$/sf	SubTotals
A. Building Trade Cost		\$9.11	\$250,000	\$9.11	\$250,000
Asbestos Abatement			\$0		\$0
Building Demolition (included in General Construction)					
General Construction (See Notes 1 & 2)		\$62.00	\$1,948,665	\$82.33	\$6,076,129
Structural Upgrades		\$2.92	\$80,000	\$2.92	\$80,000
Casework		\$4.80	\$131,664	\$4.80	\$354,269
Food Service Equipment		\$1.76	\$48,315	\$1.76	\$130,000
Fire Protection (See Note 6)		\$4.35	\$119,321	\$4.35	\$321,056
Plumbing		\$6.00	\$164,580	\$6.00	\$442,836
Heating & Ventilating (no AC)		\$15.00	\$411,450	\$15.00	\$1,107,090
Air Conditioning (1/3)		\$2.20	\$60,346	\$2.20	\$162,373
Electrical (includes \$2.00/sf AC component)		\$13.50	\$370,305	\$13.50	\$996,381
VDV Wiring		\$1.50	\$41,145	\$1.50	\$110,709
Subtotal		\$123.14	\$3,625,790	\$138.11	\$6,405,053
B. Site Trade Cost					
Earthwork and Site Improvements					
Utilities (includes well & septic)					
Site Design Contingency					
Subtotal		15.00%			
C. Total Trade Cost					
General Conditions (phased projects)					
GC Overhead & Profit		6.50%			
Subtotal General Contractor's Cost		6.00%			
Escalation to Bid @ 3.5% /year to 12/03 (12 months)		3.50%			
E. Total General Contractor's Cost					
Bid Contingency		2.50%			
F. Total Estimated Bid					
Construction Contingency		10.00%			
G. Total Estimated Construction Cost					
H. Phasing Costs					
Portable classrooms for 4 doubles per school @ \$22,400/14 months					
Other phasing (allowance for portable setups)					
Subtotal Phasing Costs					
I. Other Costs					
Furniture and Equipment					
Educational Technology Equipment					
Moving Expenses (Owner to confirm)					
Bonding (Owner to confirm)					
Indirect Expenses (See Note 3)					
Subtotal Other Costs					
J. Total Estimated Project Cost					

Assumed SBA allowable \$/sf = current \$173/sf x 1.025 (assumed 2.5% FY '04 increase beginning July '03) = \$177/sf

Assumed SBA allowable project cost FY '04 = 748 x 115 x 1.3 (allowable excess) x \$177/sf = \$19,793,202

- Assumed SBA reimbursement @ \$177/sf allowable = (Allowable Center Project Cost x \$7.06% + Allowable Pompositticut Project Cost x \$8.91%) = \$8.01% average

Approximate Cost to Town @ \$177/sf allowable = Total Project Cost less Allowable Reimbursement

Assumed SBA reimbursement @ \$173/sf allowable = (Allowable Center Project Cost x \$7.06% + Allowable Pompositticut Project Cost x \$8.91%) = \$8.01% average

Approximate Cost to Town @ \$173/sf allowable = Total Project Cost less Allowable Reimbursement

Note 1: Includes applicable building demolition

Note 2: Includes required basic renovation to satisfy code, handicapped access, and general replacement of broken and/or severely worn systems

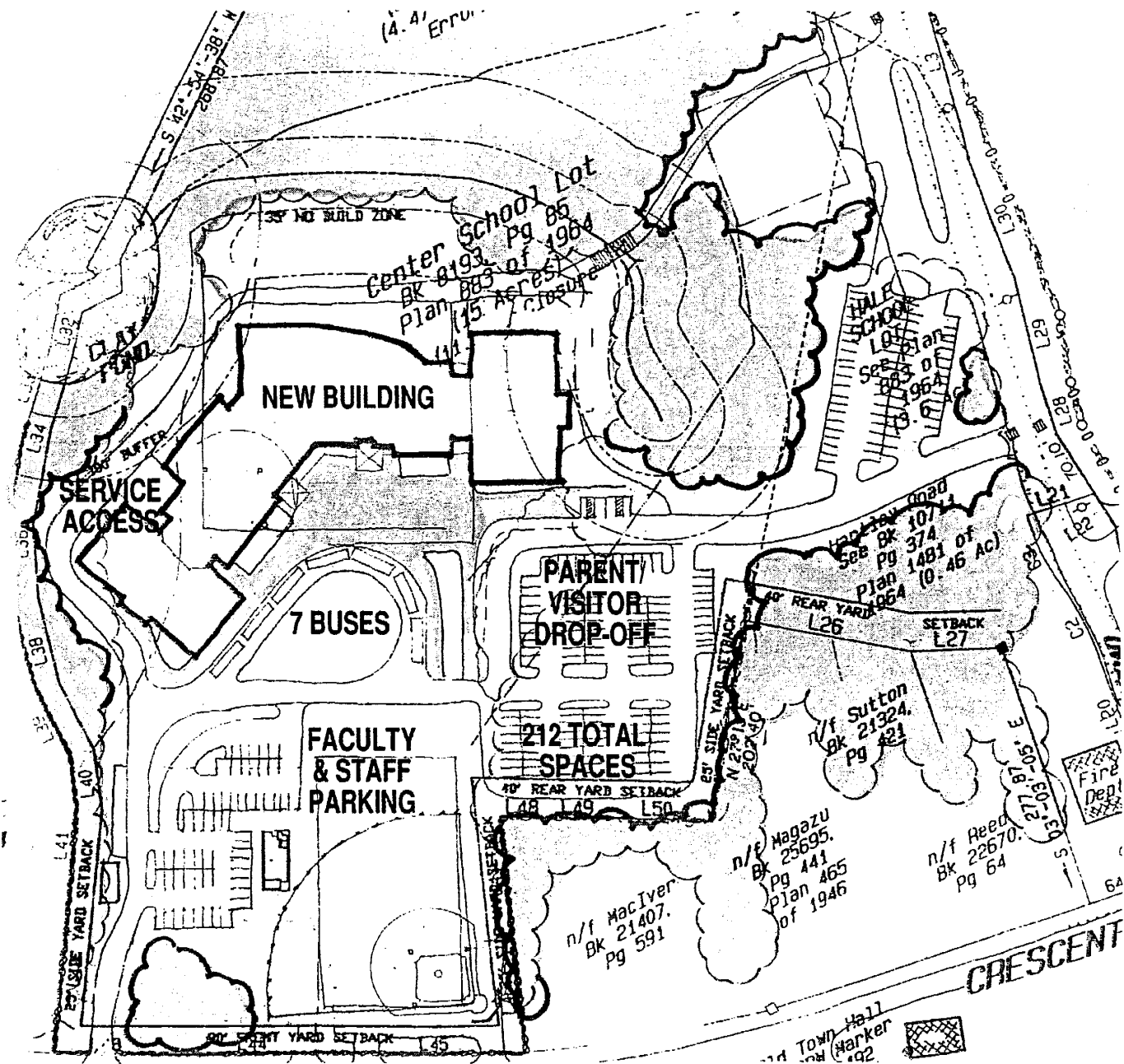
Note 3: Indirects includes full service architecture/engineering (including SBA grant application); furniture, equipment, & technology equipment design & bid packages; special inspections per Mass. CMR 780 Chapter 17; structural peer review per Mass.CMR 780 Appendix I; geotechnical; survey; soil testing; construction testing; construction management; legal costs; and bid set printing.

Note 4: SBA reimbursement assumes \$1.21% base rate + 2 % construction manager + 2% past major repair project + 0 to 5% prioritized add to reno

Note 5: Library Books not included

Note 6: Includes \$100,000 for fire pump & 40K gal cistern each school

\$11,481,984
\$17,492,460
\$11,222,504
\$17,751,940



# Center Site - Option 5A.1

Stow Elementary Schools

Stow, Massachusetts  
27 November 2002

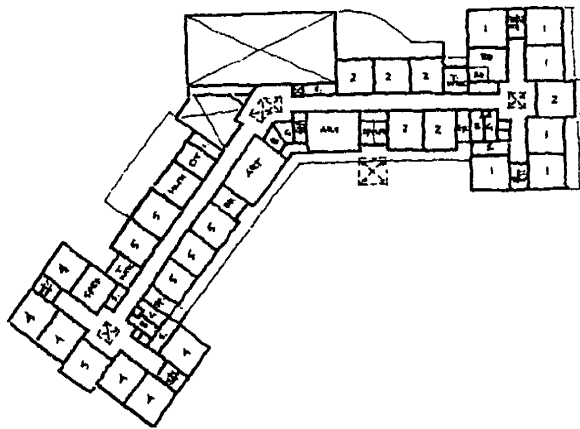


Designpartnership

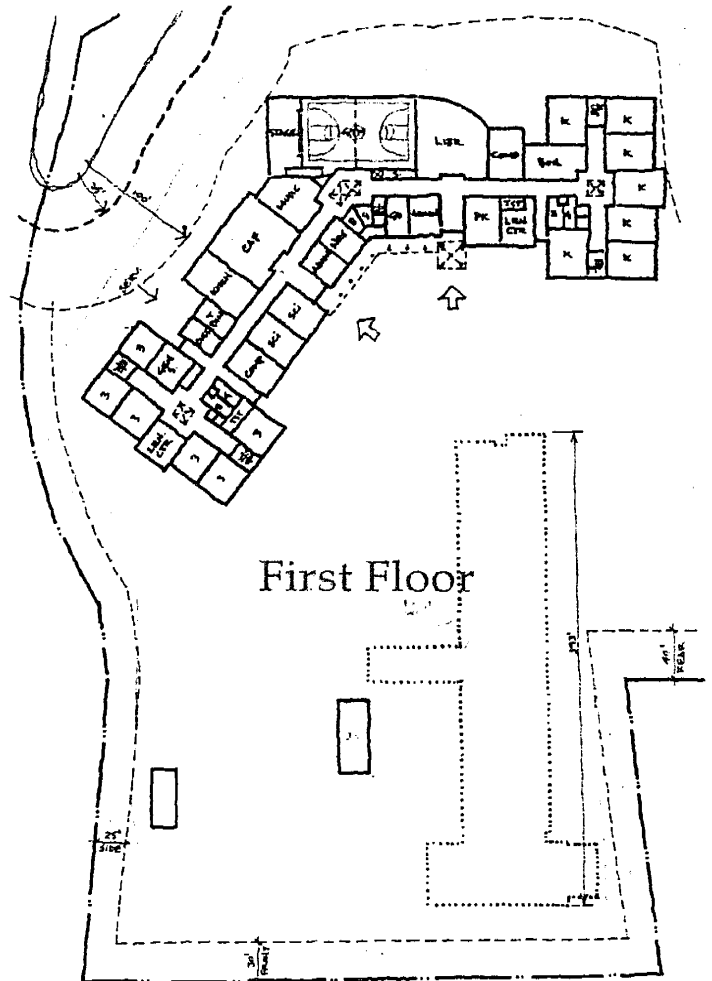


1000 BUSINESS PARK  
500 BLYTHEWOOD AVENUE  
CHARLESTOWN, MA 02129  
1 8 1 2 3 4 8800 1 8 1 2 3 4 8800  
www.dps.com

ARCHITECT  
PUBLIC WORKS  
MASTER PLANNING  
INTERIOR DESIGN



Second Floor



First Floor

Combined School (Center site)  
(PK-5th)

# Option 5A.1

Stow Elementary Schools

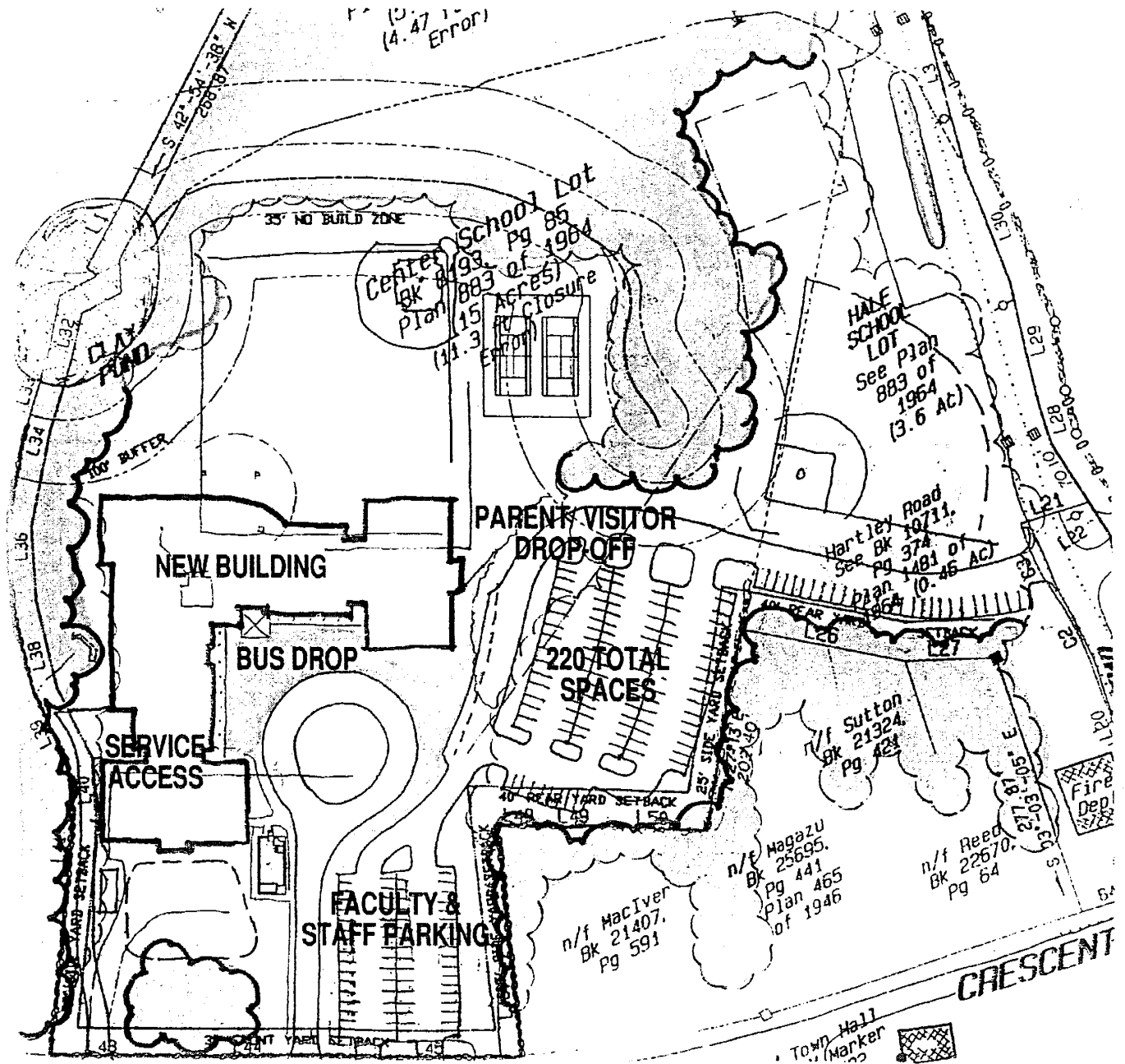
Stow, Massachusetts  
27 November 2002



Designpartnership

100 BUSINESS PARK  
100 BURNING WOOD AVENUE  
CHARLESTOWN, MA 02124  
TEL: 617.241.8800 FAX: 617.241.1110  
WWW.DP.COM

ARCHITECTURE  
PROJECT MANAGEMENT  
MASTER PLANNING  
INTERIOR DESIGN



## Center Site - Option 5A.2

Stow Elementary Schools

Stow, Massachusetts  
27 November 2002

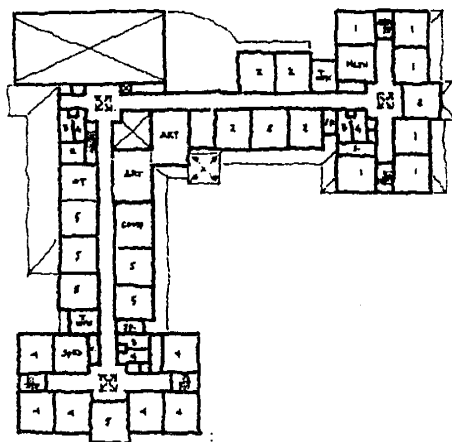


Designpartnership

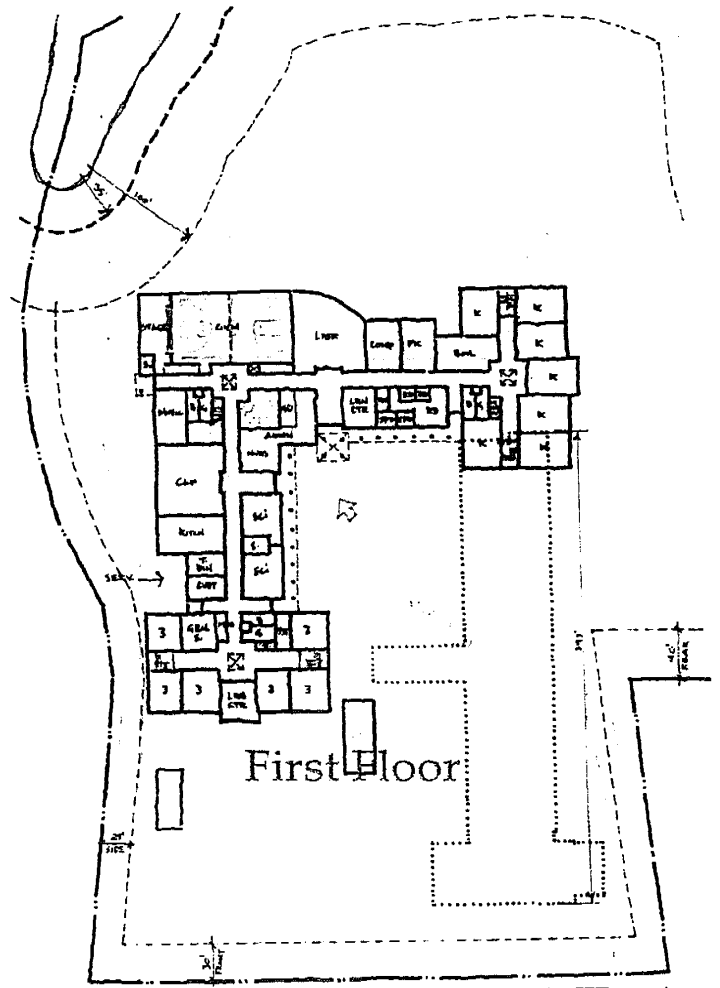


500 BATHURST AVENUE  
CHARLESTOWN, MA 02129  
1.617.241.8800, 1.617.241.5100  
WWW.DPSC.COM

ARCHITECTURAL  
PROGRAMING  
MASTER PLANNING  
INTERIOR DESIGN



Second Floor



First Floor

Combined School (Center site)  
(PK-5th)

# Option 5A.2

Stow Elementary Schools

Stow, Massachusetts  
27 November 2002



Designpartnership

WIND BUSINESS PARK  
300 RUTLAND AVENUE  
CHARLESTOWN, MA 02129  
TEL: 247-8800 FAX: 247-8800  
WWW.DPAC.COM

ARCHITECTURAL  
PROGRAMMING  
MASTER PLANNING  
INTERIOR DESIGN

Stow Elementary Schools  
Stow, MA

Feasibility Cost Estimate  
DPC, Inc.  
November 27, 2002

Option 5A1

Center School									
100% New, 2 Story, Grades K-5 + 1 PK									
Design Enrollment: 748									
Gross Square Footage: Renovations									
Gross Square Footage: New									
Total Approximate GSF:									
112,000									
112,000									



**TOWN OF  
STOW PUBLIC SCHOOLS**

**REQUEST FOR QUALIFICATIONS  
FOR  
ELEMENTARY SCHOOL FEASIBILITY STUDY**  
Revision Date: July 8, 2002

**1) AWARDING AUTHORITY**

Stow Building Committee on behalf of the Town of Stow

**2) PROJECT DESCRIPTION**

Age and increased population growth in the Town of Stow have severely impacted its two (2) elementary schools. The two schools are now substantially overcrowded. The purpose of this feasibility study is to determine how best to accommodate the present and future elementary school needs of the Town of Stow.

**3) EXISTING SCHOOLS**

The Center School, located on Great Road, presently accommodates 260 pupils (Grades 3-5) in a single story building of 35,140 SF. Originally constructed in 1954, classroom additions were provided in 1957 and 1964.

The Pompositticut School, also located on Great Road, presently accommodates 271 pupils (Grades K-2) in a single story building of 36,000 SF. Originally constructed in 1971 on the "open plan" concept, it has had no additions.

**4) SCOPE OF SERVICES**

- A) Engage an independent professional consulting firm to develop demographic information and enrollment projections leading to an elementary school enrollment projection for the period 2003-2013 (ten years).
- B) Meet with the Superintendent or her designee(s) and Principal and staff to develop an educational specification for each school meeting the requirements of the Nashoba Regional School Committee and the Massachusetts Department of Education (SBA).
- C) Perform an existing condition analysis of each school with respect to:
  - (1) Physical condition of each building - structure, interior and exterior materials and finishes, mechanical, electrical, plumbing systems, presence of hazardous materials, etc.
  - (2) Code compliance of each building with respect to state and local building codes for safe egress, detection and alarm systems, indoor air quality, water and septic systems, handicapped accessibility, energy conservation, etc.
  - (3) Condition of the site of each building with respect to well water and septic systems condition and capacity, fire water capacity, utility infrastructure,

outdoor play space, parking and vehicular access, safe loading and unloading of school buses, etc.

(4) The degree to which the existing spaces in each school meet the objectives of the Educational Specification and program goals for elementary programming in the Stow schools.

(5) Prepare a site survey of each site with any natural resources boundaries identified.

(6) Perform subsurface exploration at each site for septic and foundation design purposes.

(7) Summarize the existing condition analysis in a written report to the Committee.

D) Based on the above analysis develop conceptual design options as required to meet projected enrollment, respond to the educational specification and program goals and bring the existing schools into compliance with current code standards. Each option is to have all permitting concerns identified. School options may include:

(1) Additions and renovations to one or both schools.

(2) New construction alternatives on one or both sites.

(3) New construction alternatives on a new site (to be identified).

(4) Prepare for each of the conceptual options, site, plans, floor plans, massing studies or other graphic exhibits to illustrate the proposed option.

E) Prepare conceptual project cost budget and total project schedule for each option to include all costs associated with a reimbursable Massachusetts school project to include:

(1) Site development and construction costs ("bricks and mortar").

(2) Fees, contingencies and other "overhead" costs.

(3) Furnishings and equipment report and estimate, technology program and costs.

(4) Relocation and phasing costs for work on an occupied site, including modular classrooms if required.

4) Evaluate each option with respect to meeting educational program goals.

5) Present options to Committee and Community at public meetings.

6) Assist Committee in selecting "approved" option for presentation to Town Meetings at future dates to be determined.

F) Incorporate documentation of above tasks in a Feasibility Study Report (original and ten (10) copies to the Committee.

G) Submission of the report and necessary documentation to the Massachusetts Department of Education (SBA) to be placed on the waiting list with deferred status.

## 5) PROJECT PHASES

The Scope of Services outlined above shall be performed between August 2002 and March 2003 and the feasibility study shall be completed by December 2002.

## 6) QUALIFICATIONS OF APPLICANTS

A Designer Selection Committee will be appointed by the Awarding Authority for the

purpose of screening all applicants and making recommendations of finalists to the Awarding Authority. The selection of the finalists will be based on:

- a) Prior experience in design services for public school construction.
- b) Quality of previous work on public and private projects.
- c) Knowledge of Massachusetts public construction laws and procedures.
- d) Knowledge of Massachusetts Department of Education (SBA) procedures.
- e) Appropriate liability insurance and financial stability.
- f) Qualifications of consultants who will work on the project.
- g) Massachusetts registration of all architectural and engineering design principals.
- h) Knowledge of state, local and federal permitting considerations
- i) Any other criteria that the Designer Selection Committee considers relevant for the project.

The Designer Selection Committee shall select finalists from among all applicants and transmit the list to the Awarding Authority. The list will rank the finalists in order of qualifications, or describe them as equally qualified, and the committee will provide a record of the final votes on the selection.

The Awarding Authority reserves the right to reject any and all proposals or to waive any of the informalities in the selection process if deemed in its best interest.

#### **7) FEE**

The fee for services outlined above shall be negotiated as a lump sum not to exceed \$75,000.

The option to engage the selected Designer for services beyond the Scope of the Feasibility Study is at the discretion of the Awarding Authority, following an independent review of the Feasibility Study.

#### **8) PROPOSAL REQUIREMENTS**

Applicants are required to submit the following:

- a) Letter of application
- b) Form DSB - 1 or equivalent highlighting:
  - i) Resume of projects, especially all previous work performed on school Feasibility Studies.
  - ii) References from a minimum of five (5) previous projects involving the construction of similar public buildings.
  - iii) Resume of Project Architect and Project Manager, including references.
  - iv) List of all consultants and description of their qualifications.
- c) Any additional supporting material the applicant wishes to include.

d) Ten (10) copies of the proposal must be submitted by 2:00 PM on July 31, 2002 at:

Office of the Superintendent  
Nashoba Regional Public Schools  
50 Mechanic Street  
Bolton, MA

If requested, applicants may be invited to appear for an interview before the Designer Selection Committee.

## 9) INQUIRIES

Inquiries should be directed to:

The above address or: Dr. Johanna Van Houten  
978-779-0539

A briefing session will be held at 10:00 am on July 15, 2002 at the Center School, Great Road, Stow, MA.

The applicant may review past studies and reports related to the Stow Elementary Schools upon request.

Commonwealth of Massachusetts  
DEPARTMENT OF EDUCATION  
School Building Assistance

Inventory of Existing School Space Under The Jurisdiction  
Of The Local School Committee

The information provided on this sheet will be used for priority ranking of capital school project applications for School Building Assistance. All complete applications submitted to the Department during a given fiscal year between July 1 and June 1 will be ranked for possible approval in the next following fiscal year. It is important to provide accurate information on all existing buildings housing school children so that we may calculate your rank correctly.

Complete one form for each school building currently in use or available for use as a schoolhouse. Please indicate which space is less than 7'6" headroom with an (\*). Include a separate sheet for modular or lease spaces. *Please provide a photo of the outside of your building.*

School District Nashoba Regional School District /Code \_\_\_\_\_

School Building Pompositticut /Code \_\_\_\_\_

Date of Construction 1971 Date(s) of Addition or Renovation (s)   /  /  ,   /  /  ,   /  /  

Building Capacity 220 Current Enrollment 271 (237 FTE) Type of Construction masonry/steel

Grade Levels NOW served in THIS building (circle all that apply):

PreK K 1 2 3 4 5 6 7 8 9 10 11 12

Modular \_\_\_\_\_ Lease \_\_\_\_\_ (please use separate sheet for these spaces)

**I. Gross Square Footage** Use all **OUTSIDE** dimensions of school building to determine the following information:

	A. Gross Square Feet	B. Education Square Feet	Efficiency Factor
Basement (below grade level)			
Ground Floor	36,415	25,325	
All Upper Floors			
<b>TOTAL</b>	36,415	25,325	B/A <u>69</u> %

Person Completing Form Keith E. Hoffses Date: 11/5/02

Title Architect, Design Partnership of Cambridge Phone 617 241-9800

**I. Inventory of Educational Spaces**

For each of the educational spaces listed, calculate the gross square footage using the **INSIDE** dimensions of each area. Include any self-contained bathrooms, supply space, and teacher/staff space in each space listed. In Column "C" insert the letter that applies for each space: **B = Basement; G = Ground Floor; U = Upper Floors.**

DESCRIPTION		A NUMBER	B SQUARE FEET	C B G U	D Date of Recent Work
Pre Kindergarten/Kindergarten (incl 140 storage)		3	3,515	G	
General Classrooms (incl 200 storage)		8	7,315	G	
Computer Laboratory		1	570	G	
Science Laboratories		1	570	G	
Chapter 74 Vocational					
Arts and Crafts		1	570	G	
Music (incl 30 storage)		1	810	G	
Special Education		4	1,065	G	
Remedial		2	875	G	
Bilingual Education					
Physical Education (incl 40 storage)		1	3,150	G	
Collaborative					
Library/Media Center		1	1,265	G	
Other (stepped amphitheaters/2 <sup>nd</sup> grade common area)			3,665	G	
Total - Basic Educational Space			23,370 sq.ft		
DESCRIPTION		NUMBER	SQUARE FEET	B G U	Recent Work
Cafeteria/ Cafetorium/Stage		In Phys Ed			
Kitchen (warming only)		1	300	G	
Auditorium/Stage Cafetorium, see above					
Health Suite		1	170	G	
Guidance Suite		1	285	G	
Administration (incl 35 storage)		4	680	G	
Teacher Planning/Dining		1	345	G	
Phys.Ed. Lockers/Shower					
Other (cafetorium storage 40, shared conference 135)		2	175	G	
Total Misc Educational Space			1,955 sq.ft.		
Total Educational Space-Bldg.			25,325 sq.ft.		

Commonwealth of Massachusetts  
DEPARTMENT OF EDUCATION  
School Building AssistanceInventory of Existing School Space Under The Jurisdiction  
Of The Local School Committee

The information provided on this sheet will be used for priority ranking of capital school project applications for School Building Assistance. All complete applications submitted to the Department during a given fiscal year between July 1 and June 1 will be ranked for possible approval in the next following fiscal year. It is important to provide accurate information on all existing buildings housing school children so that we may calculate your rank correctly.

Complete one form for each school building currently in use or available for use as a schoolhouse. Please indicate which space is less than 7'6" headroom with an (\*). Include a separate sheet for modular or lease spaces. *Please provide a photo of the outside of your building.*

School District Nashoba Regional School District /Code \_\_\_\_\_School Building Center /Code \_\_\_\_\_Date of Construction 1954 Date(s) of Addition or Renovation (s) / /1957, / /1964, / /Building Capacity 300 Current Enrollment 260 Type of Construction masonry/steelGrade Levels NOW served in THIS building (circle all that apply):PreK K 1 2 3 4 5 6 7 8 9 10 11 12

Modular \_\_\_\_\_ Lease \_\_\_\_\_ (please use separate sheet for these spaces)

**I. Gross Square Footage** Use all **OUTSIDE** dimensions of school building to determine the following information:

	A. Gross Square Feet	B. Education Square Feet	Efficiency Factor  B/A <u>69</u> %
Basement (below grade level)			
Ground Floor	36,360	25,061	
II Upper Floors			
TOTAL	36,360	25,061	

Person Completing Form Keith E. Hoffses Date: 11/5/02Firm Architect, Design Partnership of Cambridge Phone 617 241-9800

**II. Inventory of Educational Spaces**

For each of the educational spaces listed, calculate the gross square footage using the **INSIDE** dimensions of each area. Include any self-contained bathrooms, supply space, and teacher/staff space in each space listed. In Column "C" insert letter that applies for each space: **B = Basement; G = Ground Floor; U = Upper Floors.**

DESCRIPTION	A NUMBER	B SQUARE FEET	C B G U	D Date of Recent Work
Pre Kindergarten/Kindergarten				
General Classrooms	12	10,730	G	
Computer Laboratory	1	890	G	
Science Laboratories (incl 65 office, 150 storage)	1	1,235	G	
Chapter 74 Vocational				
Arts and Crafts	1	890	G	
Music	1	890	G	
Special Education (incl shared OT/speech as 1 space)	4	1,880	G	
Remedial	2	340	G	
Bilingual Education				
Physical Education (incl 326 office/storage)	1	3,826	G	
Collaborative				
Library/Media Center (incl 60 storage)	1	950	G	
Other (combined kiln/gen storage)	1	150	G	
<b>Total - Basic Educational Space</b>		<b>21,781</b> sq.ft		

DESCRIPTION	NUMBER	SQUARE FEET	B G U	Recent Work
Cafeteria/ Cafetorium/Stage (platform only, cafetorium sf in Phys Ed)	1	1,400	G	
Kitchen (warming only)	1	595	G	
Auditorium/Stage Cafetorium, see above				
Health Suite	1	220	G	
Guidance Suite	1	220	G	
Administration	2	305	G	
Teacher Planning/Dining	1	345	G	
Phys.Ed. Lockers/Shower				
Other (cafetorium storage 70, shared conference/storage 125)	2	195	G	
<b>Total Misc Educational Space</b>		<b>3,280</b> sq.ft.		
<b>Total Educational Space-Bldg.</b>		<b>25,061</b> sq.ft.		



**STOW POMPOSITTICUT ELEMENTARY SCHOOL  
BASE RENOVATION 11-5-02  
STOW, MA**

Project name **Stow Pompe E.S. Base Reno**  
Stow  
MA

Client **TDPC**  
500 Rutherford Ave  
Charlestown  
MA 02129  
617-241-9800

Architect **TDPC**  
617-241-9800

Estimator ***Essential Estimating***

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
2050.00		<b>DEMOLITION</b>					
	2071.01	Demo: General					
		General Disposal	1,118.60 cuyd	14,485		17.94 /cuyd	20,064
		Shore - Screw Jack	28.00 each	17,767	1,318	730.74 /each	20,461
	2073.00	Demo: Asbestos Removal					
		Remove Vinyl Asbestos Tile	7,773.00 sqft	10,761		1.38 /sqft	10,761
	2075.00	Demo: Concrete					
		Remove Slab on Grade	4,704.00 sqft	18,728		4.50 /sqft	21,171
	2076.00	Demo: Masonry					
		Cut Out Brick & Block	84.00 sqft	2,793		37.69 /sqft	3,166
		Sawcut 8" CMU	8.00 lnft	187		38.48 /lnft	308
		Sawcut 16" CMU	96.00 lnft	4,486		77.12 /lnft	7,404
		Tooth Jamb 1 Wythe	84.00 lnft	1,305		15.53 /lnft	1,305
		Remove CMU 8"	3,067.00 sqft	7,039		2.60 /sqft	7,978
	2078.30	Demo: Misc Walls					
		Remove Movable Wall	576.00 sqft	532		0.92 /sqft	532
	2080.01	Demo: Millwork					
		Remove Casework	168.00 lnft	504		3.00 /lnft	504
	2080.05	Demo: Roofing					
		Remove Membrane Roof	25,405.00 sqft	29,682		1.12 /sqft	29,682
		Remove Skylights	100.00 sqft	462		4.62 /sqft	462
	2084.01	Demo: Doors & Windows					
		Remove Door	39.00 each	720		18.47 /each	720
		Remove Door & Frame Int Single	20.00 each	1,293		77.42 /each	1,548
		Remove Door Frame Int Double	7.00 each	517		88.50 /each	620
		Remove Door & Frame Ext Single	14.00 each	1,035		88.49 /each	1,239
		Remove Transom or Borrowed Lite	512.00 sqft	2,252		4.40 /sqft	2,252
		Remove Metal Windows	2,102.00 sqft	3,106		1.48 /sqft	3,106
		Remove Window Treatment	2,102.00 sqft	582		0.28 /sqft	582
	2084.50	Demo: Misc Items					
		Remove Chalkboards	64.00 sqft	56		0.88 /sqft	56
		Remove Tackboard	252.00 sqft	209		0.83 /sqft	209
		Remove Toilet Partitions	19.00 each	877		46.18 /each	877
		Remove Urinal Screen	9.00 each	291		32.33 /each	291
		Remove Toilet Accessories	72.00 each	416		5.77 /each	416
		Remove Acoustic Clg Panels	3,000.00 sqft	2,078		0.69 /sqft	2,078
	2088.01	Demo: Finishes, Floors					
		Remove Carpet & Pad	22,213.00 sqft	8,207		0.37 /sqft	8,207
		Remove Ceramic Tile Floor	1,329.00 sqft	1,412		1.06 /sqft	1,412
		Flash Patch @ Wall Removal	344.00 sqft	538	354	2.59 /sqft	892
	2088.21	Demo: Finishes, Walls					
		Remove Stud GWS Partition	380.00 sqft	826		2.18 /sqft	826
	2088.50	Demo: Finishes, Ceilings					
		Rem Acoust Tile & Grid	16,398.00 sqft	15,903		0.97 /sqft	15,903
		Remove Sheetrock Soffit	336.00 sqft	171		0.51 /sqft	171
		Remove Plaster Ceiling Framing	6,089.00 sqft	7,874		1.29 /sqft	7,874
		Rem Plaster Ceiling No Framing	6,089.00 sqft	7,874		1.29 /sqft	7,874
	2088.60	Demo: Plumbing					
		Remove Sink	22.00 each	1,670		75.90 /each	1,670
		Remove Water Closet	25.00 each	2,169		86.75 /each	2,169
		Remove Unnal	9.00 each	1,366		151.79 /each	1,366
	2088.70	Demo: Mechanical					
		Remove Louvers	42.00 sqft	277		6.60 /sqft	277
3000.00		<b>CONCRETE</b>					
	3310.01	Conc: Slabs On Grade					
		Patch Conc Slab Trench etc	4,704.00 sqft	17,303	30,153	10.09 /sqft	47,456
	3326.00	Conc: Slurry Coat					
		Leveling Compound	1,742.00 sqft	556	1,707	1.40 /sqft	2,436
	3381.00	Finish: Floor Hardner					
		Reseal Concrete	1,742.00 sqft	481	122	0.35 /sqft	603
00		<b>MASONRY</b>					
	4050.10	Misc: Scaffold					
		Interior Scaffold	3,060.00 sqft	1,986	918	1.11 /sqft	3,383
	4050.15	Misc: Material Handling					
		Concrete Block	4.00 m			199.93 /m	800
	4105.00	Mortar: All Types					
		Mortar Type "N"	9.56 cuyd		1,246	130.29 /cuyd	1,246
	4110.01	Mortar: Grout Fill Conc					

123,798

4,708

50,495

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
4110.01		Mortar: Grout Fill Conc					
		Grout Fill 3000 psi 1/2" Gravel	4.01 cuyd	541	495	269.82 /cuyd	1,082
		Grout Single Door Frame	30.00 each	915	340	44.44 /each	1,333
		Grout Double Door Frame	7.00 each	287	110	60.18 /each	421
4155.00		Access: Control Joint					
		Control Joint Sealant	404.00 lnft	2,229	182	5.97 /lnft	2,411
4156.00		Access: Wall Flashing					
		Flash Head Lead Ct. Cop 5 oz	513.00 sqft	1,243	1,625	5.59 /sqft	2,868
		Flash Sill Lead Ct. Cop 5 oz	429.00 sqft	936	1,279	5.16 /sqft	2,215
4157.00		Reinforce: Vertical Wall					
		Re-Bar #5 & #6	531.93 lbs	463	160	1.17 /lbs	623
4158.00		Reinforce: Horizontal Wall					
		Horiz Wall Reinf 8" Hot Dippd	2.45 mlf	671	470	465.82 /mlf	1,141
4221.15		Conc. Block: 8"					
		Blk 8" Standard Face Reg Wt	3,213.00 each	19,281	5,981	7.86 /each	25,262
4221.45		Conc. Block: 8" Lintel					
		Lintel 8" Stand Face Reg Wt	230.00 each	2,145	1,244	15.53 /each	3,572
4520.01		Masonry Restoration					
		Remove CMU 8"	4.00 each	124		35.25 /each	141
		Patch in 8" CMU	4.00 each	54	7	15.25 /each	61
5000.00		METALS					
5510.05		Misc: Lintels					
		Stl Angles 1000 - 2000 lbs	5,682.00 lb	4,949	3,136	1.42 /lb	8,085
5510.35		Misc: Bolt On Material					
		Angle Bolted To Masonry	1,101.00 lb	2,201	1,367	3.31 /lb	3,645
6000.00		WOOD & PLASTICS					
6015.00		Fasteners: Frame Anchors					
		Fastners & Misc	1.00 lsum		88	88.48 /lsum	88
6113.20		Blocking: Misc					
		Block Toilet Partition	18.00 each	344	240	32.42 /each	584
		Block H.C. Toilet Partition	10.00 each	287	165	45.20 /each	452
		Block Misc Toilet Accessories	178.00 each	2,041	984	16.99 /each	3,025
		Blocking 2 x 4 R.L.	191.00 lnft	339	91	2.25 /lnft	430
		Blocking 2 x 6 R.L.	291.00 lnft	634	220	2.93 /lnft	854
6113.40		Blocking: Rough Bucks					
		Rough Bucks 2 x 6 Doors	852.00 lnft	1,386	644	2.38 /lnft	2,030
		Rough Bucks 2 x 6 PT Doors	378.00 lnft	615	546	3.07 /lnft	1,161
		2 x 6 PT Louvers	100.00 lnft	175	145	3.19 /lnft	319
		Rough Bucks 2 x 6 PT Windows	1,394.00 lnft	3,443	2,015	3.92 /lnft	5,458
6413.00		Trim: Dr & Window Matr					
		Window Stools (Wood)	387.00 lnft	1,491	3,044	11.72 /lnft	4,535
		Apron At Stools	387.00 lnft	735	708	3.73 /lnft	1,443
7000.00		THERMAL & MOISTURE PROT					
7222.10		Insulation: Roof 1st Lay					
		Poly Iso 3.5" Layer 1	264.85 sqs	12,307	29,236	156.85 /sqs	41,542
7222.20		Insulation: Roof 2nd Lay					
		Perlite Tapered	39.73 sq	2,278	2,808	128.01 /sq	5,086
7270.00		Firestopping					
		Firesafing	306.00 lnft	351	209	1.83 /lnft	559
7531.00		Membrane: EPDM					
		Roof Elastic Sheet EPDM 60 mil <1000sf F.A.	26,485.00 sqft	41,763	36,410	3.11 /sqft	82,254
7620.01		Sheetmetal: Flashing					
		Flash Skylights	96.00 lnft	403	121	5.46 /lnft	524
7620.30		Sheetmetal: Fascia					
		Exterior Edge	1,170.00 lnft	20,592	21,680	36.13 /lnft	42,272
7630.05		Sheetmetal: Exp Joints					
		Interior Edge	466.00 lnft	5,359	8,761	30.30 /lnft	14,120
7630.10		Sheetmetal: Vents/Accsry					
		Misc Roof Access	26,485.00 sqft	13,162	24,824	1.43 /sqft	37,987
7810.00		Plastic Skylights					
		Skylight Curb Pre Fab	96.00 lnft	457	1,062	15.82 /lnft	1,519
7820.00		Metal Framed Skylights					
		Lean to Skyroof Double Med Span	100.00 sqft	1,524	4,230	57.54 /sqft	5,754
7910.01		Sealant - Jt Filler Gaskt					
		Backer Rod 1/2"	1,872.00 lnft	2,582	58	1.41 /lnft	2,639
		Polysulfide Sealant 1/4" Interior	852.00 lnft	3,463	149	4.24 /lnft	3,612
		Polyurethane Sealant 1/2"	2,744.00 lnft				

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	7910.01	Sealant - Jt Filler Gaskt					
		Rake Out Masonry Jt Filler	404.00 lnt	717	57	3.07 /lnt	1,239
8000.00		<b>DOORS &amp; WINDOWS</b>					
	8110.01	Doors: Steel with Frames					
		H M Frame 16ga Galv Single	14.00 each	900	1,579	177.09 /each	2,479
		H M Frame 16ga Galv Double	7.00 each	562	883	206.39 /each	1,445
		H M Frame 18ga Interior Single	16.00 each	1,028	1,433	153.87 /each	2,462
		H M Frame 18ga Interior Double	5.00 each	402	619	204.18 /each	1,021
		H M Door Ins 16ga Galv 3-0 x 7-0 Flush	14.00 each	843	3,887	337.85 /each	4,730
		H M Door Ins 16ga Galv 3-0 x 7-0 Full Gl	14.00 each	1,010	6,008	501.24 /each	7,017
		Metal Sidelight Frame Only Int	512.00 sqft	3,177	13,763	33.09 /sqft	16,940
	8210.01	Doors: Wood					
		Door M Core 3-0 x 7-0 Vision	65.00 each	5,478	16,391	336.45 /each	21,869
	8520.01	Window: Aluminum					
		Custom Proj 4" 125 w Ins Gl Kynar	2,102.00 sqft	17,483	81,726	47.20 /sqft	99,209
	8710.01	Hardware: Finishing					
		Finishing Hardware Ext Budget	28.00 each	4,012	18,581	806.90 /each	22,593
		Finishing Hardware Int Budget	65.00 each	3,726	20,489	372.53 /each	24,214
	8811.00	Glass: All Types					
		Glass Sheet 1/4" Tempered	512.00 sqft	6,239	3,850	19.71 /sqft	10,099
9000.00		<b>FINISHES</b>					
	9210.01	Lath/Plastr: Gyp Plaster					
		Plaster Patch @ Wall Removal	280.00 sqft	2,864	367	11.74 /sqft	3,288
		Plaster Patch Ceiling @ Wall Removal	344.00 sqft	1,165	406	4.64 /sqft	1,595
	9252.10	GWB Int Frame: S Studs					
		S Soffit Stud 358 20 ga	252.00 lnt	780	186	3.83 /lnt	966
	9252.30	GWB Int Frame: Track					
		Track Soffit 20 ga 3-5/8"	336.00 lnt	1,194	294	4.43 /lnt	1,488
	9253.10	GWB: Fasteners					
		Misc Accessories	1.00 lsum	127	67	193.98 /lsum	194
	9253.30	GWB: Boards & Sheathing					
		GWB 5/8" Soffit	336.00 sqft	547	101	1.93 /sqft	647
		GWB 5/8" Water Resistant Clgs	1,329.00 sqft	801	424	0.92 /sqft	1,225
	9254.00	GWB: Finish Mud/Tape					
		Labor GWB Ceiling Finish	1,329.00 sqft	820	120	0.71 /sqft	939
		Labor GWB Soffit Finish	336.00 sqft	223	33	0.76 /sqft	256
	9310.01	Ceramic Tile					
		Ceramic Tile Floor Grade 2	1,329.00 sqft	7,061	5,147	9.19 /sqft	12,208
		Ceramic Tile Wall Grade 2	3,222.00 sqft	13,413	9,558	7.13 /sqft	22,971
		Ceramic Trim Cove Base	306.00 lnt	2,983	889	12.66 /lnt	3,872
	9510.10	Ceiling: Susp. System					
		Susp Clg 1-1/2" Channel	1,329.00 sqft	2,235	838	2.31 /sqft	3,073
	9510.50	Ceiling: 2x4 Tile					
		MinFbr Tegulr Std 2x4 3/4" 250-500 sf	16,398.00 sqft	16,225	28,713	2.74 /sqft	44,938
	9660.01	Flooring Resilient Tile					
		Floor Vinyl Composition Tile 1/8"	7,773.00 sqft	3,841	5,764	1.24 /sqft	9,606
		Floor Resil Base 4"	4,498.00 lnt	3,435	1,807	1.17 /lnt	5,242
	9685.00	Flooring Carpet					
		Carpet Commercial 32oz	2,468.11 sqyd	15,523	51,801	27.28 /sqyd	67,324
	9910.01	Painting: Exterior					
		Paint Ext Door & Frame	28.00 each	1,247	308	55.56 /each	1,556
	9920.01	Painting: Interior					
		Paint Wd Door & Metal Frame	65.00 each	2,637	586	49.58 /each	3,222
		Paint Int Bor Lt. Frame	512.00 sqft	1,117	61	2.30 /sqft	1,179
		Paint Wood Sill	387.00 lnt	753	27	2.02 /lnt	780
		Paint Wood Apron	387.00 lnt	661	27	1.78 /lnt	688
		Paint Louvers	42.00 sqft	42	10	1.23 /sqft	52
		Paint Exist GDW Clg Roller 2ct	10,570.00 sqft	3,009	1,163	0.40 /sqft	4,172
		Epoxy Paint GDW Clg	1,329.00 sqft	1,765	838	1.96 /sqft	2,603
		Paint Int CMU Spray p+2ct	3,023.00 sqft	1,434	605	0.67 /sqft	2,039
		Paint Exist Int CMU Spray 2 ct	28,181.00 sqft	6,685	3,382	0.36 /sqft	10,067
		Epoxy Paint Int CMU	1,161.00 sqft	1,542	708	1.94 /sqft	2,251
		Epoxy Paint Exist Int CMU	1,161.00 sqft	991	511	1.29 /sqft	1,502
	9960.05	Sound Absorbing Panels					
		Custom Acoustic Ceiling Panel	3,000.00 sqft	16,508	24,540	13.68 /sqft	41,048
10000.00		<b>SPECIALTIES</b>					
	10110.01	Chalkboards/Tackboards					
		Chalkboard Alum Fr					

256,101

147,423

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
10110.01		Chalkboards/Tackboards					
		Tackboard Alum Fr	252.00 sqft	531	1,840	9.41 /sqft	2,371
10160.01		Toilet Partition Metal					
		Urinal Screens Wall Hung	9.00 each	868	1,981	316.48 /each	2,848
10160.02		Toilet Partition Phenolic					
		Toilet Partition Reg Flr Mtd	9.00 each	1,239	8,202	1,049.06 /each	9,442
		Toilet Partition HC Flr Mtd	10.00 each	1,377	12,199	1,357.64 /each	13,576
10410.01		Directory/Bulletin Boards					
		Buiding Directory	1.00 each	386	1,250	1,635.34 /each	1,635
10420.01		Plaques					
		Custom Bronze Plaque 30" x 36"	1.00 each	306	2,264	2,569.67 /each	2,570
10430.01		Signs					
		Interior Stock	27.00 each	248	166	15.31 /each	413
		Interior Custom	45.00 each	1,238	2,401	80.87 /each	3,639
10523.00		Fire Extinguishers					
		Fire Ext Cabinet	12.00 each	1,376	1,871	270.59 /each	3,247
10617.00		Partitions Operable					
		Operable Partition 2-1/4" T Avg.	576.00 sqft	1,666	24,019	44.59 /sqft	25,685
		Operable Partition Track	72.00 lnft		6,458	89.70 /lnft	6,458
10800.01		Toilet Accessories					
		Grab Bar 1-1/4" S.S. 36"	32.00 each	734	1,221	61.09 /each	1,955
		Mirror 18" x 30" S.S.	22.00 each	656	1,975	119.56 /each	2,630
		Sanitary Napkin Dispenser Recessed	5.00 each	153	2,046	439.77 /each	2,199
		Clothes Hook Single	19.00 each	242	252	26.00 /each	494
		Soap Dispenser	22.00 each	1,009	2,877	176.64 /each	3,886
		Stainless Steel Shelf	33.00 lnft	344	840	35.87 /lnft	1,184
		Toilet Tissue Disp Dbl	29.00 each	554	541	37.73 /each	1,094
		Towel Dispenser Surface Mtd	6.00 each	172	262	72.35 /each	434
		Towel Disp/Waste Recept	10.00 each	917	4,015	493.19 /each	4,932
0.00		<b>FURNISHINGS</b>					
12350.00		Casework					
		School Casework Base & Top	168.00 lnft	10,991	31,216	251.24 /lnft	42,207
12520.01		Shades					
		Vinyl Heavy Wt	2,102.00 sqft	1,446	2,838	2.04 /sqft	4,284
5500.00		<b>HVAC SYSTEMS</b>					
15856.00		Louvers/Filters					
		Fixed Blade Stormproof	42.00 sqft	970	1,268	53.29 /sqft	2,238

## Estimate Totals

Labor	542,797	9,699.979 hrs
Material	613,300	
Equipment	20,815	1,390.241 hrs
	1,176,912	

Contingency Reno Study	176,531	15.000 %	T
<b>Total</b>	<b>1,353,443</b>		

35,713

4659,616

693,827

**STOW CENTER ELEMENTARY SCHOOL  
BASE RENOVATION 10-27-02  
STOW, MA**

**Project name**      **Stow Cent E.S. Base Reno**  
Stow  
MA

**Client**              **TDPC**  
500 Rutherford Ave  
Charlestown  
MA 02129  
617-241-9800

**Architect**          **TDPC**  
617-241-9800

**Estimator**          ***Essential Estimating***

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
2050.00		<b>DEMOLITION</b>					
	2071.01	<b>Demo: General</b>					
		General Disposal	1,590.00 cuyd	20,589		17.94 /cuyd	
		Shore - Screw Jack	13.00 each	8,249	612	730.74 /each	28,519
	2073.00	<b>Demo: Asbestos Removal</b>					9,500
		Remove Vinyl Asbestos Tile	5,722.31 sqft	7,922		1.38 /sqft	7,922
	2075.00	<b>Demo: Concrete</b>					
		Remove Ramp	40.00 sqft	242		6.84 /sqft	274
		Remove Ext Platform	360.00 sqft	2,378		7.48 /sqft	2,692
	2076.00	<b>Demo: Masonry</b>					
		Remove Chimney 60" x 60"	10.00 vlf	1,444		172.88 /vlf	1,729
		Cut Out Opng 8" CMU	91.00 sqft	1,577		19.64 /sqft	1,787
		Saw Masonry Brick	695.00 lnft	2,054	188	3.81 /lnft	2,648
		Sawcut 8" CMU	114.00 lnft	2,658		38.48 /lnft	4,386
		Tooth Jambs 1 Wythe	91.00 lnft	1,413		15.53 /lnft	1,413
		Remove CMU 8"	3,120.00 sqft	7,161		2.60 /sqft	8,116
		Remove Brick Veneer	695.00 sqft	2,054		3.54 /sqft	2,460
		Remove Chimney Cap	25.00 sqft	58		2.77 /sqft	69
	2077.00	<b>Demo: Steel</b>					
		Remove Ladder	11.00 lnft	96		8.68 /lnft	96
		Remove Steel Rail	59.00 lnft	341		5.77 /lnft	341
	2078.00	<b>Demo: Wood</b>					
		Remove Wood Floor Frame	3,855.00 sqft	6,231		1.62 /sqft	6,231
	2078.30	<b>Demo: Misc Walls</b>					
		Remove Movable Wall	2,254.00 sqft	2,082		0.92 /sqft	2,082
	2080.01	<b>Demo: Millwork</b>					
		Remove Cubbies	252.00 lnft	2,328		9.24 /lnft	2,328
		Remove Tall Cabinet	72.00 lnft	798		11.08 /lnft	798
		Remove Casework	864.00 lnft	2,594		3.00 /lnft	2,594
	2080.05	<b>Demo: Roofing</b>					
		Remove Shingles	8,186.00 sqft	4,601		0.56 /sqft	4,601
		Remove Membrane Roof	29,624.00 sqft	33,301		1.12 /sqft	33,301
		Remove Skylights	756.00 sqft	3,491		4.62 /sqft	3,491
		Remove Canopy	627.00 sqft	2,064		5.52 /sqft	3,463
	2084.01	<b>Demo: Doors &amp; Windows</b>					
		Remove Door	12.00 each	222		18.47 /each	222
		Remove Door & Frame Ext Single	20.00 each	1,478		88.49 /each	1,770
		Remove Door & Frame Ext Double	9.00 each	776		103.25 /each	929
		Remove Transom or Borrowed Lite	291.00 sqft	1,280		4.40 /sqft	1,280
		Remove Roll-Up Grille	1.00 each	193		192.78 /each	193
		Remove Metal Windows	4,624.00 sqft	6,834		1.48 /sqft	6,834
		Remove Window Treatment	4,624.00 sqft	1,281		0.28 /sqft	1,281
	2084.50	<b>Demo: Misc Items</b>					
		Remove Tackboard	632.00 sqft	525		0.83 /sqft	525
		Remove Toilet Partitions	27.00 each	1,247		46.18 /each	1,247
		Remove Urinal Screen	8.00 each	259		32.33 /each	259
		Remove Toilet Accessories	73.00 each	421		5.77 /each	421
		Remove Stage Curtain	372.00 sqft	2,989		8.04 /sqft	2,989
		Remove Kitchen Work Table	16.00 lnft	133		8.31 /lnft	133
		Remove Basketball Backstops	2.00 each	739		369.47 /each	739
	2088.01	<b>Demo: Finishes, Floors</b>					
		Remove Carpet & Pad	19,672.37 sqft	7,268		0.37 /sqft	7,268
		Remove Ceramic Tile Floor	2,075.00 sqft	2,204		1.06 /sqft	2,204
		Remove Bluestone	108.00 sqft	120		1.11 /sqft	120
		Remove Rec Floor Matt	60.00 sqft	183		3.05 /sqft	183
		Flash Patch @ Wall Removal	335.00 sqft	524	345	2.59 /sqft	969
	2088.21	<b>Demo: Finishes, Walls</b>					
		Remove Wood Panel But No Studs	924.00 sqft	981		1.06 /sqft	981
		Remove Stud GWB Partition	230.00 sqft	500		2.18 /sqft	500
	2088.50	<b>Demo: Finishes, Ceilings</b>					
		Rem. Acoust Tile & Grid	29,040.00 sqft	28,164		0.97 /sqft	28,164
		Remove Plaster Ceiling Framing	840.00 sqft	1,086		1.29 /sqft	1,086
		Rem Plaster Ceiling No Framing	840.00 sqft	1,086		1.29 /sqft	1,086
	2088.60	<b>Demo: Plumbing</b>					
		Remove Sink	13.00 each	987		75.90 /each	987
		Remove Water Closet	21.00 each	1,822		86.75 /each	1,822
		Remove Urinal	8.00 each	1,214		151.79 /each	1,214
	2088.70	<b>Demo: Mechanical</b>					
		Remove Louvers	125.00 sqft	826		6.60 /sqft	826

76,044

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
3000.00		CONCRETE					
	3131.00	Forms: Ramps					
		Ramp Forms 2 use	36.00 lnt	177	48	6.24 /lnt	225
	3163.00	Forms: Expand/Control Jts					
		Premolded Exp Jt - 6"	90.00 lnt	100	122	2.46 /lnt	222
	3164.00	Forms: Pits & Misc.					
		Pad Forms	234.00 sqft	6,552	986	32.22 /sqft	7,538
	3225.00	Rebar: WWM @ Ramp/Misc					
		Wiremesh - Ramp 6x6 6/6	0.80 sqs	33	10	54.21 /sqs	43
		Wiremesh - Pad 6x6 6/6	3.60 sqs	153	46	55.44 /sqs	200
	3309.50	Conc: Ramps					
		Ramp Conc 4000 psi	1.48 cuyd	42	122	119.66 /cuyd	177
	3312.00	Conc: Pit & Misc					
		Pad Conc 4000 psi	6.67 cuyd	66	501	85.38 /cuyd	569
	3326.00	Conc: Slurry Coat					
		Leveling Compound	5,722.00 sqft	1,826	5,608	1.40 /sqft	8,001
	3375.00	Finish: Protect & Cure					
		Cure Conc w/burlap Ramp	0.80 sqs	12	6	22.03 /sqs	16
		Conc Cure w/burlap Pad	3.60 sqs	59	27	23.86 /sqs	86
	3380.01	Finish: General					
		Trowel Finish Pad	360.00 sqft	497	-	1.38 /sqft	497
		Broom/Float Finish Ramp	80.00 sqft	48	-	0.60 /sqft	48
4000.00		MASONRY					
	4050.10	Misc: Scaffold					
		Interior Scaffold	3,120.00 sqft	2,025	936	1.11 /sqft	3,449
	4050.15	Misc: Material Handling					
		Concrete Block	4.00 m	-	-	199.93 /m	800
		Brick	3.00 m	-	-	67.16 /m	201
	4105.00	Mortar: All Types					
		Mortar Type "N"	9.90 cuyd	-	1,290	130.29 /cuyd	1,290
		Mortar Color	60.00 lbs	288	599	14.78 /lbs	887
	4110.01	Mortar: Grout Fill Conc					
		Grout Fill 3000 psi, 1/2" Gravl	4.08 cuyd	551	503	269.80 /cuyd	1,101
		Grout Single Door Frame	33.00 each	1,007	374	44.44 /each	1,467
		Grout Double Door Frame	12.00 each	491	189	60.18 /each	722
	4156.00	Access: Wall Flashing					
		Flash Head Lead Ct. Cop 5 oz	909.00 sqft	2,203	2,880	5.59 /sqft	5,083
		Flash Sill Lead Ct. Cop 5 oz	795.00 sqft	1,734	2,370	5.16 /sqft	4,104
	4157.00	Reinforce: Vertical Wall					
		Re-Bar #5 & #6	542.36 lbs	472	163	1.17 /lbs	635
	4158.00	Reinforce: Horizontal Wall					
		Horiz Wall Reinf 8" Hot Dippd	2.32 mlf	636	445	465.79 /mlf	1,081
	4215.00	Brick: Specials					
		Brick Sill	2,085.00 each	10,139	2,253	5.94 /each	12,393
	4218.20	Brick: Chimney					
		Chimney 20" x 32" 2-flues	10.00 vlf	1,157	738	189.53 /vlf	1,895
	4221.15	Conc. Block: 8"					
		Blk 8" Standard Face Reg Wt	2,952.00 each	17,715	5,495	7.86 /each	23,210
	4221.45	Conc. Block: 8" Lintel					
		Lintel 8" Stand Face Reg Wt	234.00 each	2,182	1,265	15.53 /each	3,634
	4222.10	Unit Masonry Glazed Conc					
		Patch & Replace Glazed CMU	122.00 sqft	2,027	1,403	28.11 /sqft	3,429
	4424.00	Stone Slate					
		Refinish Slate Floor	351.00 sqft	1,148	893	5.81 /sqft	2,041
	4425.00	Stone Bluestone					
		Bluestone Floor	108.00 sqft	1,706	1,255	27.41 /sqft	2,961
	4520.01	Masonry Restoration					
		Cut & Repoint CMU Hard Mortar	50.00 lnt	268	35	7.85 /lnt	393
		Repoint Brick Soft Mortar	400.00 sqft	929	143	2.68 /sqft	1,072
		Remove Individual Brick	473.00 each	16,375	-	46.11 /each	21,811
		Patch Individual Brick	472.00 each	3,816	382	8.90 /each	4,199
		Remove CMU 8"	79.00 each	2,457	-	35.25 /each	2,785
		Patch in 8" CMU	160.00 each	2,153	286	15.25 /each	2,439
5000.00		METALS					
	5510.05	Misc: Lintels					
		Stl Angles 1000 - 2000 lbs	1,025.00 lb	893	566	1.42 /lb	1,459
	5510.35	Misc: Bolt On Material					

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Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	5510.35	Misc: Bolt On Material					
		Angle Bolted To Masonry	1,115.00 lb	2,229	1,385	3.31 /lb	3,692
	5510.61	Misc: Ladders					
		Ladders	11.00 vlf	460	430	82.32 /vlf	906
	5510.80	Stairs: Stair Parts					
		Stair Railing Galv 1-1/2" 1 pipe	17.00 inft	164	206	22.09 /inft	375
		Stair Railing Galv 1-1/2" 2 pipe	62.00 inft	899	1,231	34.85 /inft	2,161
		Stair Railing Steel 1-1/2" 6 pipe	252.00 inft	8,566	11,162	79.47 /inft	20,025
	5516.00	Stairs: Grating					
		Grate Weld StlGlv 3/4 x 1/8	504.00 sqft	1,096	5,242	12.65 /sqft	6,373
6000.00		<b>WOOD &amp; PLASTICS</b>					
	6015.00	Fasteners: Frame Anchors					
		Fastners & Misc	1.00 /sum		274	274.29 /sum	274
	6113.20	Blocking: Misc.					
		Block Toilet Partition	26.00 each	496	347	32.42 /each	843
		Block H.C. Toilet Partition	9.00 each	258	149	45.19 /each	407
		Block Misc Toilet Accessories	147.00 each	1,685	813	16.99 /each	2,498
		Blocking 2 x 4 R.L.	453.00 inft	805	216	2.25 /inft	1,021
		Blocking 2 x 6 R.L.	1,273.00 inft	2,773	962	2.93 /inft	3,735
	6113.40	Blocking: Rough Bucks					
		Rough Bucks 2 x 6 Doors	303.00 inft	493	229	2.38 /inft	722
		Rough Bucks 2 x 6 PT Doors	636.00 inft	1,035	919	3.07 /inft	1,954
		2 x 6 PT Louvers	300.00 inft	524	434	3.19 /inft	958
		Rough Bucks 2 x 6 PT Windows	1,786.00 inft	4,411	2,581	3.92 /inft	6,993
	6250.00	Prefinished Wood Paneling					
		Raised Wood Panel Arch Grade	204.00 sqft	992	1,091	10.21 /sqft	2,083
	6410.00	Trim: Cabinets					
		Wood Cubbies Simple Design	242.00 each	16,928	12,954	123.48 /each	29,882
	6413.00	Trim: Dr & Window Matrl					
		Window Stools (Wood)	695.00 inft	2,678	5,466	11.72 /inft	8,144
		Apron At Stools	695.00 inft	1,319	1,272	3.73 /inft	2,591
7000.00		<b>THERMAL &amp; MOISTURE PROT</b>					
	7222.10	Insulation: Roof 1st Lay					
		Poly Iso 3.5" Layer 1	296.24 sqs	13,765	32,700	156.85 /sqs	46,466
	7222.20	Insulation: Roof 2nd Lay					
		Perlite Tapered	44.44 sq	2,548	3,141	128.01 /sq	5,689
	7270.00	Firestopping					
		Firesafing	312.00 inft	358	213	1.83 /inft	570
	7310.00	Shingles: Asphalt					
		Premium Class C 300-385 lb	81.86 sqs	12,357	6,266	227.50 /sqs	18,623
	7312.10	Shingles: Felt					
		Roofing Felt 30 lb	81.86 sqs	1,078	618	20.72 /sqs	1,696
	7531.00	Membrane: EPDM					
		Roof Elastic Sheet EPDM 60 mil <1000sf F.A.	29.624.00 sqft	46,713	40,726	3.11 /sqft	92,003
	7620.01	Sheetmetal: Flashing					
		Flash Skylights	882.00 inft	3,705	1,112	5.46 /inft	4,817
	7620.15	Sheetmetal: Guttr DwnSpt					
		Downspout Copper Circular 5"	110.00 inft	542	998	14.00 /inft	1,540
		Gutter Copper 1/2 Round 5"	290.00 inft	1,523	1,455	10.27 /inft	2,977
	7620.30	Sheetmetal: Fascia					
		Exterior Edge	1,358.00 inft	23,901	25,164	36.13 /inft	49,065
	7630.05	Sheetmetal: Exp Joints					
		Interior Edge	118.00 inft	1,357	2,218	30.30 /inft	3,575
	7630.10	Sheetmetal: Vents/Accsry					
		Misc Roof Access	37,810.00 sqft	18,791	35,439	1.43 /sqft	54,230
		Vent - Soffit 3"	12.00 inft	25	8	2.75 /inft	33
	7810.00	Plastic Skylights					
		Skylight 3' x 4'	63.00 each	6,299	20,346	422.94 /each	26,645
	7910.01	Sealant - Jt Filler Gaskt					
		Backer Rod 1/2"	882.00 inft	4,199	9,755	15.82 /inft	13,954
		Polysulfide Sealant 1/4" Interior	2,697.00 inft	3,719	83	1.41 /inft	3,803
		Polyurethane Sealant 1/2"	303.00 inft	1,232	53	4.24 /inft	1,285
8000.00		<b>DOORS &amp; WINDOWS</b>					
	8110.01	Doors: Steel with Frames					
		H.M. Frame 16ga Galv Single	20.00 each	1,286	2,256	177.09 /each	3,542
		H.M. Frame 16ga Galv Double	9.00 each	723	1,135	206.22 /each	1,857

23,467

35,145

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
8110.01		<b>Doors: Steel with Frames</b>					
		H M Frame 18ga Interior Single	13.00 each	836	1,165	153.87 /each	2,000
		H M Frame 18ga Interior Double	2.00 each	161	248	204.18 /each	408
		H M Door Ins 16ga Galv 3-0 x 7-0 Flush	24.00 each	1,446	6,663	337.85 /each	8,109
		H M Door Ins 16ga Galv 3-0 x 7-0 Full Gl	26.00 each	1,875	11,157	501.24 /each	13,032
		H M Door 18 ga 3-0 x 7-0 Vision	4.00 each	228	1,075	325.87 /each	1,303
		Metal Sidelight Frame Only Ext	282.00 sqft	16,989	8,875	91.71 /sqft	25,863
		Metal Sidelight Frame Only Int	9.00 sqft	56	242	33.09 /sqft	298
8210.01		<b>Doors: Wood</b>					
		Door M Core 3-0 x 7-0 Vision	51.00 each	4,298	12,861	336.45 /each	17,159
8330.01		<b>Doors: Coiling</b>					
		Door Roll Up Fire Rated	44.00 sqft	981	1,587	58.35 /sqft	2,567
8520.01		<b>Window: Aluminum</b>					
		Custom Proj 4" 125 W Ins Gl Kynar	4,624.00 sqft	38,459	179,781	47.20 /sqft	218,240
8710.01		<b>Hardware: Finishing</b>					
		Finishing Hardware Ext Budget	50.00 each	7,165	33,180	806.90 /each	40,345
		Finishing Hardware Int Budget	55.00 each	3,153	17,337	372.53 /each	20,489
8811.00		<b>Glass: All Types</b>					
		Glass Sheet 1/4" Tempered	9.00 sqft	110	68	19.70 /sqft	177
		Glass Insulated Tempered	282.00 sqft	5,501	5,880	40.36 /sqft	11,381
9000.00		<b>FINISHES</b>					
9210.01		<b>Lath/Plastr: Gyp Plaster</b>					
		Plaster Patch @ Wall Removal	240.00 sqft	2,455	314	11.74 /sqft	2,818
		Plaster Patch	61.00 sqft	624	80	11.74 /sqft	716
		Plaster Patch Ceiling @ Wall Removal	335.00 sqft	1,135	395	4.64 /sqft	1,554
		Gypsum Plaster Clg 2 coat System	93.33 sqyd	3,269	455	40.70 /sqyd	3,799
9253.10		<b>GWB: Fasteners</b>					
		Misc Accessories	1.00 lsum	392	146	537.59 /lsum	538
9253.30		<b>GWB: Boards &amp; Sheathing</b>					
		GWB 5/8" Water Resistant Clgs	2,075.00 sqft	1,250	663	0.92 /sqft	1,913
9254.00		<b>GWB: Finish Mud/Tape</b>					
		Labor GWB Ceiling Finish	2,075.00 sqft	1,280	187	0.71 /sqft	1,467
9260.00		<b>Blueboard</b>					
		1/2" Plaster Base Clgs	840.00 sqft	557	252	0.96 /sqft	809
9310.01		<b>Ceramic Tile</b>					
		Ceramic Tile Floor Grade 2	2,075.00 sqft	11,025	8,036	9.19 /sqft	19,061
		Ceramic Tile Wall Grade 2	1,656.00 sqft	6,894	4,912	7.13 /sqft	11,806
		Ceramic Trim Cove Base	289.00 lnft	2,818	840	12.66 /lnft	3,657
		Patch Ceramic Trim Cove Base	15.00 lnft	195	45	15.96 /lnft	239
9510.10		<b>Ceiling: Susp. System</b>					
		Susp Clg 1-1/2" Channel	2,915.00 sqft	4,903	1,838	2.31 /sqft	6,741
9510.70		<b>Ceiling: 12x12 Tile</b>					
		MinFbr Teguir Std 12x12 3/4" 250-500 sf	29,040.00 sqft	25,860	92,725	4.08 /sqft	118,585
9660.01		<b>Flooring Resilient Tile</b>					
		Floor Vinyl Composition Tile 1/8"	5,722.00 sqft	2,828	4,243	1.24 /sqft	7,071
		Patch Floor Vinyl Composition Tile 1/8"	447.26 sqft	342	364	1.58 /sqft	706
		Floor Resil Base 4"	4,364.00 lnft	3,333	1,753	1.17 /lnft	5,086
9685.00		<b>Flooring Carpet</b>					
		Carpet Commercial 32oz	2,185.82 sqyd	13,748	45,876	27.28 /sqyd	59,624
9910.01		<b>Painting: Exterior</b>					
		Paint Ext Door & Frame	50.00 each	2,228	550	55.56 /each	2,778
		Paint Ext Bor Lt Frame	282.00 sqft	682	25	2.51 /sqft	708
		Paint Ext Wood Siding	704.00 sqft	601	239	1.19 /sqft	841
		Paint Exist Col Cover	44.00 lnft	17	3	0.44 /lnft	19
		Paint Ext Stair Pipe 2 Rails	62.00 lnft	91	20	1.79 /lnft	111
		Paint Ext Stair Hand 1 Rail	17.00 lnft	15	3	1.04 /lnft	18
		Paint Ext Gratings & Frames	504.00 sqft	909	171	2.14 /sqft	1,080
9920.01		<b>Painting: Interior</b>					
		Paint Wd Door & Metal Frame	50.00 each	2,028	451	49.58 /each	2,479
		Paint Metal Door & Frame	4.00 each	135	33	41.96 /each	168
		Paint Int Bor Lt Frame	9.00 sqft	20	1	2.30 /sqft	21
		Paint Wood Sill	695.00 lnft	1,352	49	2.02 /lnft	1,401
		Paint Wood Apron	695.00 lnft	1,187	49	1.78 /lnft	1,236
		Paint Louvers	125.00 sqft	125	29	1.23 /sqft	153
		Paint Int Pipe Rails	1,512.00 lnft	1,148	272	0.94 /lnft	1,420
		Paint Ladder	11.00 lnft	31	6	3.32 /lnft	37
		Refinish Exist Trim	1,008.00 lnft	1,535	1,089	2.60 /lnft	2,623
		Paint Plywood Wainscot	204.00 sqft	77	14	0.45 /sqft	92
		Paint GDW Clg Roller p+2ct	840.00 sqft	400	20		

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
9920.01		Painting: Interior					
		Epoxy Paint GDW Ctg	2,075.00 sqft	2,757	1,308	1.96 /sqft	4,065
		Paint Int CMU Spray p+2ct	2,307.00 sqft	1,095	461	0.67 /sqft	1,556
		Paint Exist Int CMU Spray 2 ct	33,396.00 sqft	7,922	4,008	0.36 /sqft	11,930
		Epoxy Paint Exist Int CMU	837.00 sqft	715	368	1.29 /sqft	1,083
10000.00		<b>SPECIALTIES</b>					
10110.01		Chalkboards/Tackboards					
		Repair Chalkboard Fr	1,728.00 sqft	5,517	1,624	4.13 /sqft	7,142
		Tackboard Alum Fr	632.00 sqft	1,333	4,614	9.41 /sqft	5,946
		Repair Tackboard Fr	1,728.00 sqft	5,517	1,244	3.91 /sqft	6,762
10160.01		Toilet Partition Metal					
		Urinal Screens Wall Hung	8.00 each	771	1,761	316.48 /each	2,532
10160.02		Toilet Partition Phenolic					
		Toilet Partition Reg Flr Mtd	18.00 each	2,479	16,404	1,049.06 /each	18,883
		Toilet Partition HC Flr Mtd	9.00 each	1,239	10,979	1,357.64 /each	12,219
10410.01		Directory/Bulletin Boards					
		Buiding Directory	1.00 each	386	1,250	1,635.34 /each	1,635
10420.01		Plaques					
		Custom Bronze Plaque 30" x 36"	1.00 each	306	2,264	2,569.66 /each	2,570
10430.01		Signs					
		Interior Stock	41.00 each	376	252	15.31 /each	628
		Interior Custom	22.00 each	605	1,174	80.87 /each	1,779
10523.00		Fire Extinguishers					
		Fire Ext Cabinet	7.00 each	802	1,092	270.59 /each	1,894
10535.00		Canopies					
		Walkway Canopie Avg	627.00 sqft	4,582	11,405	26.85 /sqft	16,837
10615.00		Partitions Demountable					
		Partition Demountable 9' Vinyl Clad Gyp	147.00 lnt	2,949	13,656	112.96 /lnt	16,605
10617.00		Partitions Operable					
		Operable Partition 2-1/4" t Avg	1,078.00 sqft	3,117	44,953	44.59 /sqft	48,070
		Operable Partition Track	49.00 lnt	-	4,395	89.70 /lnt	4,395
10800.01		Toilet Accessories					
		Grab Bar 1-1/4" S S 36"	24.00 each	550	916	61.09 /each	1,466
		Mirror 18" x 30" S S	13.00 each	387	1,167	119.56 /each	1,554
		Janitor Utility Unit	3.00 each	69	173	80.72 /each	242
		Sanitary Napkin Dispenser Recessed	5.00 each	153	2,046	439.77 /each	2,199
		Clothes Hook Single	27.00 each	344	358	26.00 /each	702
		Soap Dispenser	13.00 each	596	1,700	176.64 /each	2,296
		Stainless Steel Shelf	20.00 lnt	209	509	35.87 /lnt	717
		Toilet Tissue Disp Dbl	30.00 each	573	559	37.73 /each	1,132
		Towel Dispenser Surface Mtd	3.00 each	86	131	72.35 /each	217
		Towel Disp/Waste Recpt	9.00 each	825	3,613	493.19 /each	4,439
11000.00		<b>EQUIPMENT</b>					
11060.01		Equip: Stage					
		Curtain Track Med Duty	31.00 lnt	1,660	1,111	89.39 /lnt	2,771
		Curtain Fireproof	372.00 sqft	7,171	6,934	37.92 /sqft	14,106
11132.00		Equip: Projection Screens					
		Manual Intermediate	450.00 sqft	976	2,516	7.76 /sqft	3,491
		Elec Operated Deluxe 50 sf - 200 sf	90.00 sqft	434	1,463	21.08 /sqft	1,897
11490.01		Equip: Gym					
		Basketball Backboard Ctg Swing	2.00 each	3,132	7,129	5,130.42 /each	10,261
		Floor Sleeves	2.00 each	86	299	192.30 /each	385
		Scoreboard Basketball Min	1.00 each	831	2,046	2,916.95 /each	2,917
		Chin Up Bar	1.00 each	92	250	341.67 /each	342
		Parallel Bars Wall Mounted	1.00 set	611	780	1,391.15 /set	1,391
		Climbing Ropes	1.00 each	131	259	389.83 /each	390
		Exercise Ladder Wall Mounted	1.00 each	306	1,217	1,522.28 /each	1,522
12000.00		<b>FURNISHINGS</b>					
12350.00		Casework					
		School Casework Base & Top	432.00 lnt	28,264	80,270	251.24 /lnt	108,534
		Perimeter Casework 1' Open	432.00 lnt	89,154	33,661	284.30 /lnt	122,816
12520.01		Shades					
		Vinyl Heavy Wt	4,624.00 sqft	3,181	6,242	2.04 /sqft	9,423
12690.01		Floor Mats					
		Entrance Mat Rec 3/8" w Frame	60.00 sqft	385	1,550	32.25 /sqft	1,935
14000.00		<b>CONVEYING SYSTEMS</b>					
14405.00		Lifts					
		Lift Commercial					

88,477

15,774

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
15500.00		<b>HVAC SYSTEMS</b>					
	15856.00	Louvers/Filters					
		Fixed Blade Stormproof	125 00 sqft	2,888	3,774	53.29 /sqft	6,662

## Estimate Totals

Labor	841,726	14,793.734 hrs	
Material	1,010,040		
Equipment	<u>29,238</u>	1,664.438 hrs	
Contingency Reno Study	282,116	15.000 %	T
<b>Total</b>	<b>2,163,120</b>		

-563,217

1,599,903

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
2050.00		DEMOLITION					
	2071.01	Demo: General	1,118.60 cuyd	32,252	1,318	36.23 /cuyd	40,524
	2073.00	Demo: Asbestos Removal	7,773.00 sqft	10,761		1.38 /sqft	10,761
	2075.00	Demo: Concrete	57.50 cuyd	18,728		368.19 /cuyd	21,171
	2076.00	Demo: Masonry	2,108.00 cuft	15,810		9.56 /cuft	20,160
	2078.30	Demo: Misc Walls	576.00 sqft	532		0.92 /sqft	532
	2080.01	Demo: Millwork	168.00 sqft	504		3.00 /sqft	504
	2080.05	Demo: Roofing	265.05 sqs	30,144		113.73 /sqs	30,144
	2084.01	Demo: Doors & Windows	80.00 each	9,506		125.85 /each	10,068
	2084.50	Demo: Misc Items	3,416.00 sqft	3,928		1.15 /sqft	3,928
	2088.01	Demo: Finishes, Floors	23,542.00 sqft	10,156	354	0.45 /sqft	10,511
	2088.21	Demo: Finishes, Walls	380.00 sqft	826		2.18 /sqft	826
	2088.50	Demo: Finishes, Ceilings	28,912.00 sqft	31,822		1.10 /sqft	31,822
	2088.60	Demo: Plumbing	56.00 sqft	5,205		92.94 /sqft	5,205
	2088.70	Demo: Mechanical	42.00 sqft	277		6.60 /sqft	277
		DEMOLITION		170,451	1,672	/sqft	186,434
3000.00		CONCRETE					
	3310.01	Conc: Slabs On Grade	57.50 cuyd	17,303	30,153	825.32 /cuyd	47,456
	3326.00	Conc: Slurry Coat	1,742.00 sqft	556	1,707	1.40 /sqft	2,436
	3381.00	Finish: Floor Hardner	1,742.00 sqft	481	122	0.35 /sqft	603
		CONCRETE		18,340	31,982	/sqft	50,494
4000.00		MASONRY					
	4050.10	Misc: Scaffold	3,060.00 sqft	1,986	918	1.11 /sqft	3,383
	4050.15	Misc: Material Handling	4.00 m			199.93 /m	800
	4105.00	Mortar: All Types	9.60 cuyd		1,246	129.74 /cuyd	1,246
	4110.01	Mortar: Grout Fill Conc	4.00 cuyd	1,743	945	709.13 /cuyd	2,837
	4155.00	Access: Control Joint	404.00 lnft	2,229	182	5.97 /lnft	2,411
	4156.00	Access: Wall Flashing	942.00 sqft	2,179	2,904	5.40 /sqft	5,083
	4157.00	Reinforce: Vertical Wall	532.00 lbs	463	160	1.17 /lbs	623
	4158.00	Reinforce: Horizontl Wall	2.45 mlf	671	470	465.82 /mlf	1,141
	4221.15	Conc. Block: 8"	3,213.00 each	19,281	5,981	7.86 /each	25,262
	4221.45	Conc. Block: 8" Lintel	230.00 each	2,145	1,244	15.53 /each	3,572
	4520.01	Masonry Restoration		178	7	/m	202
		MASONRY		30,875	14,057	/sqft	46,559
5000.00		METALS					
	5510.05	Misc: Lintels	5,682.00 lbs	4,949	3,136	1.42 /lbs	8,085
	5510.35	Misc: Bolt On Material	1,101.00 lbs	2,201	1,367	3.31 /lbs	3,645
		METALS		7,150	4,504	/sqft	11,731
6000.00		WOOD & PLASTICS					
	6015.00	Fasteners: Frame Anchors	1.00 each		88	88.48 /each	88
	6113.20	Blocking: Misc.	0.62 mbf	3,644	1,701	8,620.27 /mbf	5,345
	6113.40	Blocking: Rough Bucks	2.72 mbf	5,619	3,349	3,297.03 /mbf	8,968
	6413.00	Trim: Dr & Window Matrl	774.00 lnft	2,226	3,752	7.72 /lnft	5,977
		WOOD & PLASTICS		11,488	8,890	/sqft	20,378
7000.00		THERMAL & MOISTURE PROT					
	7222.10	Insulation: Roof 1st Lay	264.85 sqs	12,307	29,236	156.85 /sqs	41,542
	7222.20	Insulation: Roof 2nd Lay	39.73 sqs	2,278	2,808	128.01 /sqs	5,086
	7270.00	Firestopping	306.00 lnft	351	209	1.83 /lnft	559
	7531.00	Membrane: EPDM	264.85 sqs	41,763	36,410	310.57 /sqs	82,254
	7620.01	Sheetmetal: Flashing	96.00 lnft	403	121	5.46 /lnft	524
	7620.30	Sheetmetal: Fascia	1,170.00 lnft	20,592	21,680	36.13 /lnft	42,272
	7630.05	Sheetmetal: Exp Joints	466.00 lnft	5,359	8,761	30.30 /lnft	14,120
	7630.10	Sheetmetal: Vents/Accsry	26,485.00 each	13,162	24,824	1.43 /each	37,987
	7810.00	Plastic Skylights	96.00 each	457	1,062	15.82 /each	1,519
	7820.00	Metal Framed Skylights	100.00 sqft	1,524	4,230	57.54 /sqft	5,754
	7910.01	Sealant - Jt Filler Gaskt	4,596.00 lnft	22,251	1,768	5.33 /lnft	24,485
		THERMAL & MOISTURE PRO		120,447	131,108	/sqft	256,102
8000.00		DOORS & WINDOWS					

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	8110.01	Doors: Steel with Frames	42.00 each	7,922	28,172	859.37 /each	36,094
	8210.01	Doors: Wood	65.00 each	5,478	16,391	336.45 /each	21,869
	8520.01	Window: Aluminum	2,102.00 sqft	17,483	81,726	47.20 /sqft	99,209
	8710.01	Hardware: Finishing	93.00 set	7,738	39,069	503.31 /set	46,808
	8811.00	Glass: All Types	512.00 sqft	6,239	3,850	19.71 /sqft	10,089
		<b>DOORS &amp; WINDOWS</b>		<b>44,860</b>	<b>169,208</b>	<b>/sqft</b>	<b>214,068</b>
9000.00		<b>FINISHES</b>					
	9210.01	Lath/Plastr: Gyp Plaster	624.00 sqft	4,029	773	7.83 /sqft	4,884
	9252.10	GWB Int Frame: S Studs	252.00 each	780	186	3.83 /each	966
	9252.30	GWB Int Frame: Track	336.00 Inft	1,194	294	4.43 /Inft	1,488
	9253.10	GWB: Fasteners	1.00 each	127	67	193.98 /each	194
	9253.30	GWB: Boards & Sheathing	1,665.00 sqft	1,347	525	1.13 /sqft	1,872
	9254.00	GWB: Finish Mud/Tape	1,665.00 sqft	1,043	153	0.72 /sqft	1,196
	9310.01	Ceramic Tile	4,551.00 sqft	23,458	15,594	8.58 /sqft	39,051
	9510.10	Ceiling: Susp. System	1,329.00 sqft	2,235	838	2.31 /sqft	3,073
	9510.50	Ceiling: 2x4 Tile	16,398.00 sqft	16,225	28,713	2.74 /sqft	44,938
	9660.01	Flooring Resilient Tile	7,773.00 sqft	7,276	7,571	1.91 /sqft	14,848
	9685.00	Flooring Carpet	2,468.10 sqyd	15,523	51,801	27.28 /sqyd	67,324
	9910.01	Painting: Exterior	588.00 sqft	1,247	308	2.65 /sqft	1,556
	9920.01	Painting: Interior	48,118.00 sqft	20,637	7,917	0.59 /sqft	28,554
	9960.05	Sound Absorbing Panels	3,000.00 sqft	16,508	24,540	13.68 /sqft	41,048
		<b>FINISHES</b>		<b>111,630</b>	<b>139,280</b>	<b>/sqft</b>	<b>250,991</b>
10000.00		<b>SPECIALTIES</b>					
	10110.01	Chalkboards/Tackboards	316.00 sqft	666	2,438	9.82 /sqft	3,104
	10160.01	Toilet Partition Metal	9.00 each	868	1,981	316.48 /each	2,848
	10160.02	Toilet Partition Phenolic	19.00 each	2,617	20,401	1,211.47 /each	23,018
	10410.01	Directory/Bulletin Boards	1.00 each	386	1,250	1,635.34 /each	1,635
	10420.01	Plaques	1.00 each	306	2,264	2,569.67 /each	2,570
	10430.01	Signs	72.00 each	1,486	2,567	56.29 /each	4,053
	10523.00	Fire Extinguishers	12.00 each	1,376	1,871	270.59 /each	3,247
	10617.00	Partitions Operable	1.00 each	1,666	30,477	32,142.99 /each	32,143
	10800.01	Toilet Accessories	178.00 each	4,780	14,028	105.66 /each	18,808
		<b>SPECIALTIES</b>		<b>14,148</b>	<b>77,277</b>	<b>/sqft</b>	<b>91,426</b>
12000.00		<b>FURNISHINGS</b>					
	12350.00	Casework	168.00 Inft	10,991	31,216	251.24 /Inft	42,207
	12520.01	Shades	2,102.00 sqft	1,446	2,838	2.04 /sqft	4,284
		<b>FURNISHINGS</b>		<b>12,437</b>	<b>34,054</b>	<b>/sqft</b>	<b>46,491</b>
15500.00		<b>HVAC SYSTEMS</b>					
	15856.00	Louvers/Filters	42.00 sqft	970	1,268	53.29 /sqft	2,238
		<b>HVAC SYSTEMS</b>		<b>970</b>	<b>1,268</b>	<b>/sqft</b>	<b>2,238</b>

## Estimate Totals

Labor	542,797	9,699 979 hrs
Material	613,300	
Equipment	20,815	1,390 241 hrs
	<u>1,176,912</u>	
Contingency Reno Study	176,531	15 000 %
<b>Total</b>	<b>1,353,443</b>	<b>T</b>

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
2050.00		DEMOLITION					
	2071.01	Demo: General	1,590.00 cuyd	28,838	612	23.91 /cuyd	38,019
	2073.00	Demo: Asbestos Removal	5,722.00 sqft	7,922		1.38 /sqft	7,922
	2075.00	Demo: Concrete	7.40 cuyd	2,619		400.72 /cuyd	2,965
	2076.00	Demo: Masonry	2,637.00 cuft	18,419	188	8.57 /cuft	22,609
	2077.00	Demo: Steel	70.00 each	436		6.23 /each	436
	2078.00	Demo: Wood	3,855.00 sqft	6,231		1.62 /sqft	6,231
	2078.30	Demo: Misc Walls	2,254.00 sqft	2,082		0.92 /sqft	2,082
	2080.01	Demo: Millwork	1,188.00 sqft	5,719		4.81 /sqft	5,719
	2080.05	Demo: Roofing	391.93 sqs	43,457		114.45 /sqs	44,856
	2084.01	Demo: Doors & Windows	42.00 each	12,063		297.81 /each	12,508
	2084.50	Demo: Misc Items	1,130.00 sqft	6,314		5.59 /sqft	6,314
	2088.01	Demo: Finishes, Floors	21,915.00 sqft	10,299	345	0.49 /sqft	10,644
	2088.21	Demo: Finishes, Walls	1,154.00 sqft	1,482		1.28 /sqft	1,482
	2088.50	Demo: Finishes, Ceilings	29,880.00 sqft	30,337		1.02 /sqft	30,337
	2088.60	Demo: Plumbing	42.00 sqft	4,023		95.78 /sqft	4,023
	2088.70	Demo: Mechanical	125.00 sqft	826		6.60 /sqft	826
		DEMOLITION		181,065	1,144	/sqft	196,971
3000.00		CONCRETE					
	3131.00	Forms: Ramps	36.00 lnft	177	48	6.24 /lnft	225
	3163.00	Forms: Expand/Control Jts	90.00 lnft	100	122	2.46 /lnft	222
	3164.00	Forms: Pits & Misc.	234.00 sqft	6,552	986	32.22 /sqft	7,538
	3225.00	Rebar: WWM @ Ramp/Misc	4.40 sqs	187	56	55.22 /sqs	243
	3309.50	Conc: Ramps	1.50 cuyd	42	122	118.07 /cuyd	177
	3312.00	Conc: Pit & Misc	6.70 cuyd	66	501	84.99 /cuyd	569
	3326.00	Conc: Slurry Coat	5,722.00 sqft	1,826	5,608	1.40 /sqft	8,001
	3375.00	Finish: Protect & Cure	4.40 sqs	70	33	23.53 /sqs	104
	3380.01	Finish: General	440.00 sqft	544		1.24 /sqft	544
		CONCRETE		9,565	7,476	/sqft	17,623
4000.00		MASONRY					
	4050.10	Misc: Scaffold	3,120.00 sqft	2,025	936	1.11 /sqft	3,449
	4050.15	Misc: Material Handling	7.00 m			143.03 /m	1,001
	4105.00	Mortar: All Types	9.90 cuyd	288	1,888	219.86 /cuyd	2,177
	4110.01	Mortar: Grout Fill Conc	4.10 cuyd	2,049	1,067	802.33 /cuyd	3,290
	4156.00	Access: Wall Flashing	1,705.00 sqft	3,937	5,250	5.39 /sqft	9,187
	4157.00	Reinforce: Vertical Wall	542.00 lbs	472	163	1.17 /lbs	635
	4158.00	Reinforce: Horizontal Wall	2.32 mlf	636	445	465.79 /mlf	1,081
	4215.00	Brick: Specials	2.09 m	10,139	2,253	5,929.54 /m	12,393
	4218.20	Brick: Chimney	10.00 vlf	1,157	738	189.53 /vlf	1,895
	4221.15	Conc. Block: 8"	2,952.00 each	17,715	5,495	7.86 /each	23,210
	4221.45	Conc. Block: 8" Lintel	234.00 each	2,182	1,265	15.53 /each	3,634
	4222.10	Unit Masonry Glazed Conc	122.00 sqft	2,027	1,403	28.11 /sqft	3,429
	4424.00	Stone Slate	351.00 sqft	1,148	893	5.81 /sqft	2,041
	4425.00	Stone Bluestone	109.00 sqft	1,706	1,255	27.16 /sqft	2,961
	4520.01	Masonry Restoration	2.92 m	25,998	847	11,198.06 /m	32,698
		MASONRY		71,479	23,897	/sqft	103,080
5000.00		METALS					
	5510.05	Misc: Lintels	1,025.00 lbs	893	566	1.42 /lbs	1,459
	5510.35	Misc: Bolt On Material	1,115.00 lbs	2,229	1,385	3.31 /lbs	3,692
	5510.61	Misc: Ladders	11.00 vlf	460	430	82.32 /vlf	906
	5510.80	Stairs: Stair Parts	6.00 flt	9,629	12,599	3,760.23 /flt	22,561
	5516.00	Stairs: Grating	504.00 sqft	1,096	5,242	12.65 /sqft	6,373
		METALS		14,307	20,221	/sqft	34,990
6000.00		WOOD & PLASTICS					
	6015.00	Fasteners: Frame Anchors	1.00 each		274	274.29 /each	274
	6113.20	Blocking: Misc.	1.75 mbf	6,017	2,486	4,858.93 /mbf	8,503
	6113.40	Blocking: Rough Bucks	3.03 mbf	6,463	4,163	3,506.93 /mbf	10,626
	6250.00	Prefinished Wood Paneling	204.00 sqft	992	1,091	10.21 /sqft	2,083
	6410.00	Trim: Cabinets	242.00 lnft	16,928	12,954	123.48 /lnft	29,882

Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
6413.00	I Trim: Dr & Window Matr		1,390.00 lnft	3,997	6,737	7.72 /lnft	10,735
	WOOD & PLASTICS			34,397	27,706	/sqft	62,103
7000.00	THERMAL & MOISTURE PROT						
7222.10	Insulation: Roof 1st Lay	296.24 sqs	13,765	32,700	156.85 /sqs	46,466	
7222.20	Insulation: Roof 2nd Lay	44.44 sqs	2,548	3,141	128.01 /sqs	5,689	
7270.00	Firestopping	312.00 lnft	358	213	1.83 /lnft	570	
7310.00	Shingles: Asphalt	81.86 sqs	12,357	6,266	227.50 /sqs	18,623	
7312.10	Shingles: Felt	81.86 sqs	1,078	618	20.72 /sqs	1,696	
7531.00	Membrane: EPDM	296.24 sqs	46,713	40,726	310.57 /sqs	92,003	
7620.01	Sheetmetal: Flashing	882.00 lnft	3,705	1,112	5.46 /lnft	4,817	
7620.15	Sheetmetal: Guttr DwnSpt	400.00 lnft	2,065	2,453	11.29 /lnft	4,518	
7620.30	Sheetmetal: Fascia	1,358.00 lnft	23,901	25,164	36.13 /lnft	49,065	
7630.05	Sheetmetal: Exp Joints	118.00 lnft	1,357	2,218	30.30 /lnft	3,575	
7630.10	Sheetmetal: Vents/Accsry	37,822.00 each	18,816	35,447	1.44 /each	54,263	
7810.00	Plastic Skylights	63.00 each	10,499	30,101	644.44 /each	40,599	
7910.01	Sealant - Jt Filler Gaskt	5,697.00 lnft	27,267	2,303	5.19 /lnft	29,570	
	THERMAL & MOISTURE PRO		164,429	182,461	/sqft	351,454	
8000.00	DOORS & WINDOWS						
8110.01	Doors: Steel with Frames	44.00 each	23,598	32,815	1,282.12 /each	56,413	
8210.01	Doors: Wood	51.00 each	4,298	12,861	336.45 /each	17,159	
8330.01	Doors: Coiling	44.00 each	981	1,587	58.35 /each	2,567	
8520.01	Window: Aluminum	4,624.00 sqft	38,459	179,781	47.20 /sqft	218,240	
8710.01	Hardware: Finishing	105.00 set	10,317	50,517	579.37 /set	60,834	
8811.00	Glass: All Types	291.00 sqft	5,611	5,947	39.72 /sqft	11,558	
	DOORS & WINDOWS		83,265	283,507	/sqft	366,772	
9000.00	FINISHES						
9210.01	Lath/Plastr: Gyp Plaster	1,476.00 sqft	7,482	1,244	6.02 /sqft	8,887	
9253.10	GWB: Fasteners	1.00 each	392	146	537.59 /each	538	
9253.30	GWB: Boards & Sheathing	2,075.00 sqft	1,250	663	0.92 /sqft	1,913	
9254.00	GWB: Finish Mud/Tape	2,075.00 sqft	1,280	187	0.71 /sqft	1,467	
9260.00	Blueboard	840.00 sqft	557	252	0.96 /sqft	809	
9310.01	Ceramic Tile	3,746.00 sqft	20,931	13,833	9.28 /sqft	34,764	
9510.10	Ceiling: Susp. System	2,915.00 sqft	4,903	1,838	2.31 /sqft	6,741	
9510.70	Ceiling: 12x12 Tile	29,040.00 sqft	25,860	92,725	4.08 /sqft	118,585	
9660.01	Flooring Resilient Tile	6,169.00 sqft	6,502	6,360	2.09 /sqft	12,863	
9685.00	Flooring Carpet	2,185.80 sqyd	13,748	45,876	27.28 /sqyd	59,624	
9910.01	Painting: Exterior	2,663.00 sqft	4,542	1,012	2.09 /sqft	5,554	
9920.01	Painting: Interior	44,848.00 sqft	20,563	8,229	0.64 /sqft	28,792	
	FINISHES		108,010	172,364	/sqft	280,534	
10000.00	SPECIALTIES						
10110.01	Chalkboards/Tackboards	4,088.00 sqft	12,367	7,482	4.86 /sqft	19,849	
10160.01	Toilet Partition Metal	8.00 each	771	1,761	316.48 /each	2,532	
10160.02	Toilet Partition Phenolic	27.00 each	3,718	27,383	1,151.92 /each	31,102	
10410.01	Directory/Bulletin Boards	1.00 each	386	1,250	1,635.34 /each	1,635	
10420.01	Plaques	1.00 each	306	2,264	2,569.66 /each	2,570	
10430.01	Signs	63.00 each	981	1,426	38.21 /each	2,407	
10523.00	Fire Extinguishers	7.00 each	802	1,092	270.59 /each	1,894	
10535.00	Canopies	627.00 sqft	4,582	11,405	26.85 /sqft	16,837	
10615.00	Partitions Demountable	147.00 each	2,949	13,656	112.96 /each	16,605	
10617.00	Partitions Operable	1.00 each	3,117	49,348	52,465.01 /each	52,465	
10800.01	Toilet Accessories	147.00 each	3,792	11,173	101.80 /each	14,964	
	SPECIALTIES		33,772	128,239	/sqft	162,861	
11000.00	EQUIPMENT						
11060.01	Equip: Stage	1.00 each	8,832	8,045	16,876.52 /each	16,877	
11132.00	Equip: Projection Screens	540.00 sqft	1,410	3,979	9.98 /sqft	5,389	
11490.01	Equip: Gym	1.00 lsum	5,188	11,979	17,207.32 /lsum	17,207	
	EQUIPMENT		15,429	24,003	/sqft	39,472	
2000.00	FURNISHINGS						

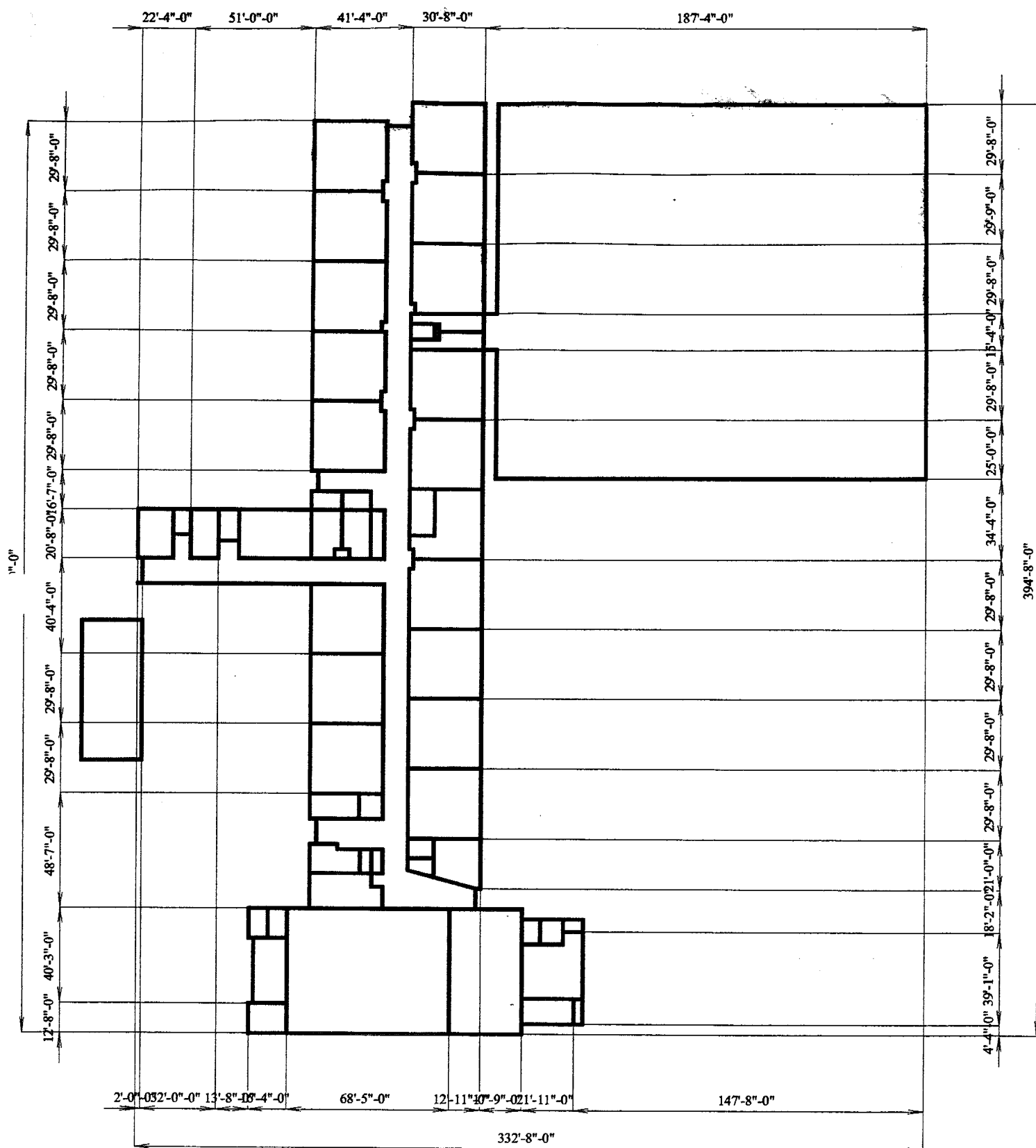
Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
12350.00	Casework		864.00 Inft	117,418	113,931	267.77 /Inft	231,349
12520.01	Shades		4,624.00 sqft	3,181	6,242	2.04 /sqft	9,423
12690.01	Floor Mats		60.00 sqft	385	1,550	32.25 /sqft	1,935
	<b>FURNISHINGS</b>			<b>120,984</b>	<b>121,724</b>	<b>/sqft</b>	<b>242,707</b>
14000.00	<b>CONVEYING SYSTEMS</b>						
14405.00	Lifts		1.00 each	2,137	13,523	15,773.83 /each	15,774
	<b>CONVEYING SYSTEMS</b>			<b>2,137</b>	<b>13,523</b>	<b>/sqft</b>	<b>15,774</b>
15500.00	<b>HVAC SYSTEMS</b>						
15856.00	Louvers/Filters		125.00 sqft	2,888	3,774	53.29 /sqft	6,662
	<b>HVAC SYSTEMS</b>			<b>2,888</b>	<b>3,774</b>	<b>/sqft</b>	<b>6,662</b>

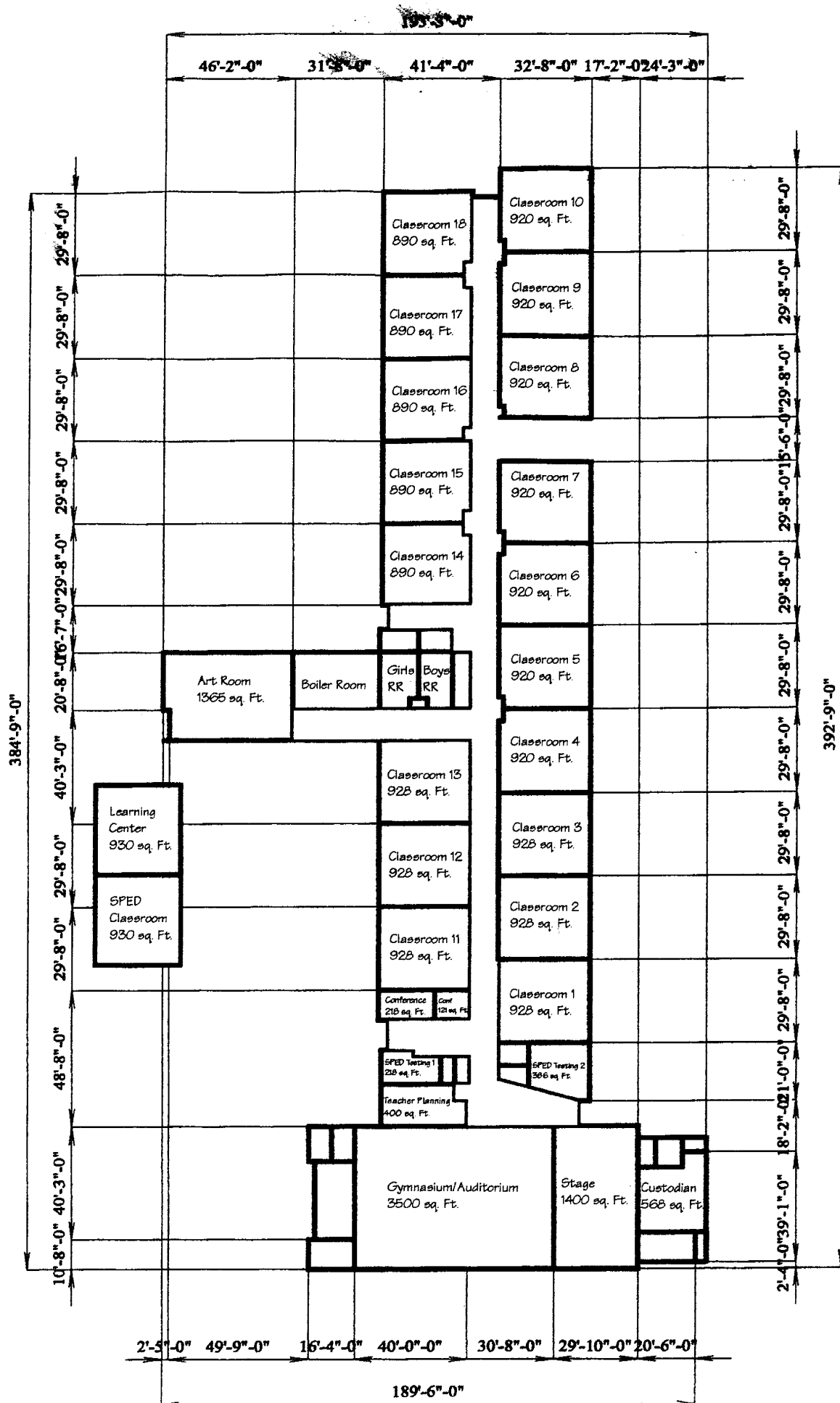
## Estimate Totals

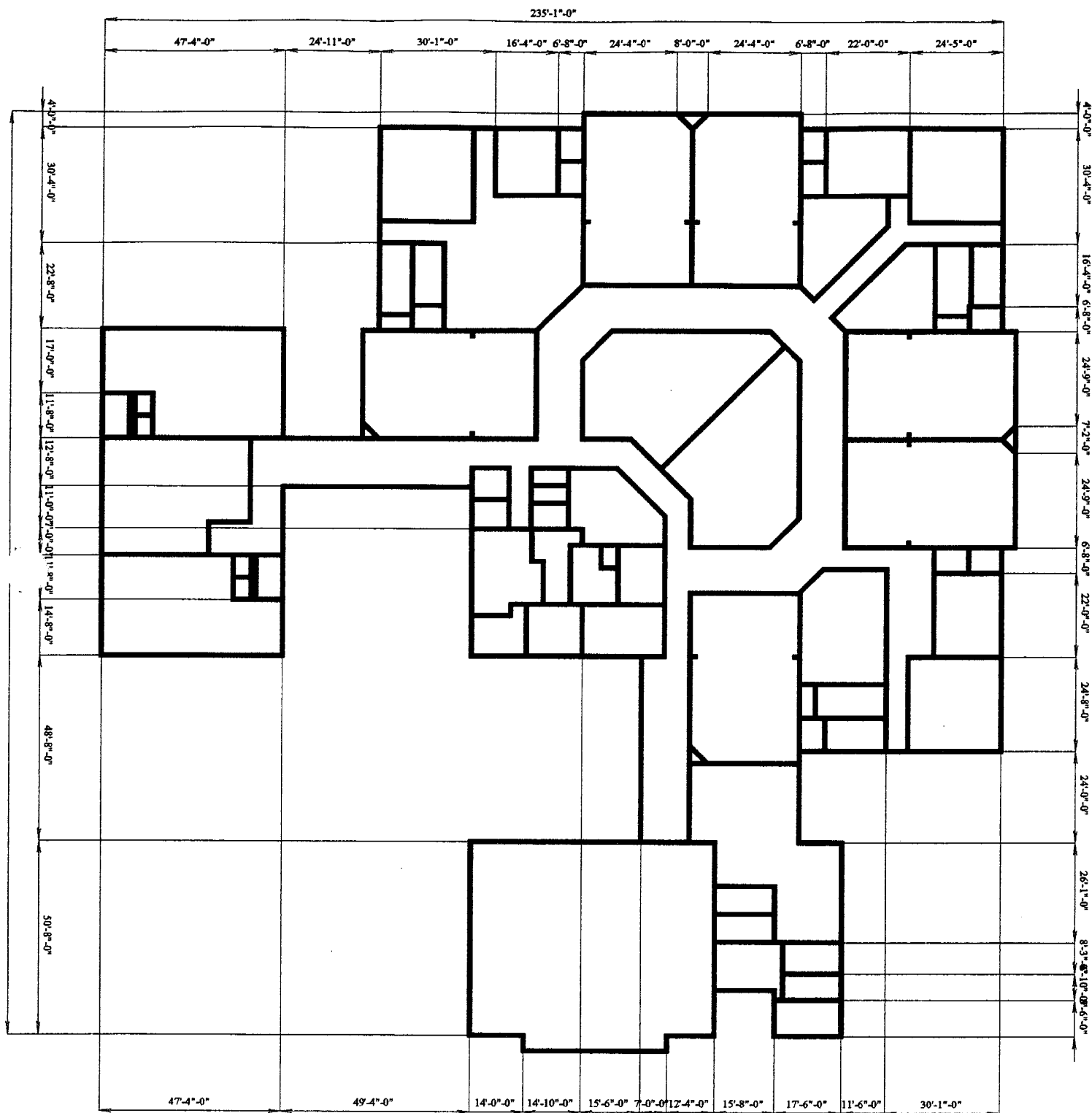
Labor	841,726	14,793 734 hrs
Material	1,010,040	
Equipment	29,239	1,664 438 hrs
	<b>Total</b>	<b>2,163,120</b>
Contingency Reno Study	282,116	15 000 %

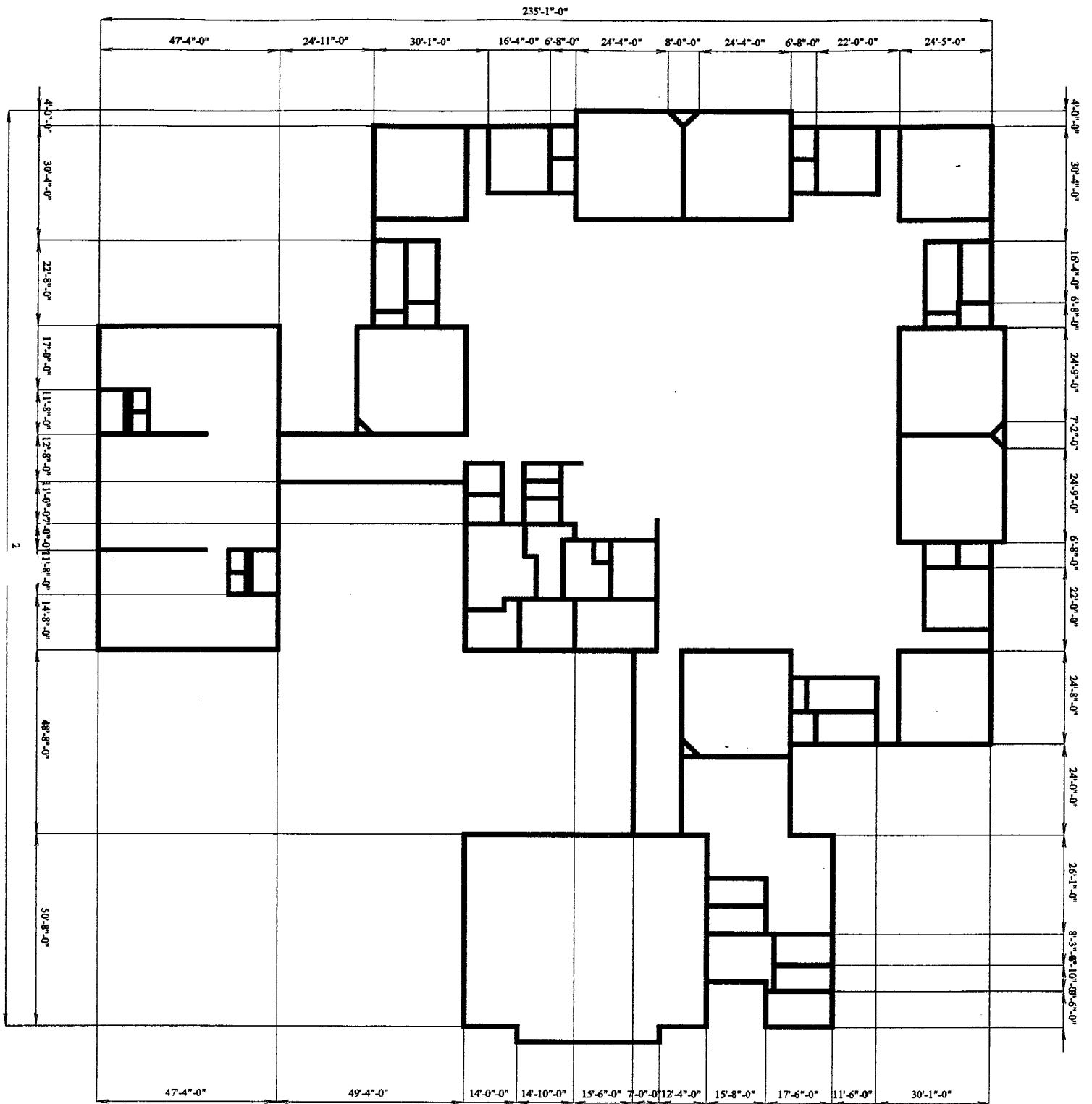
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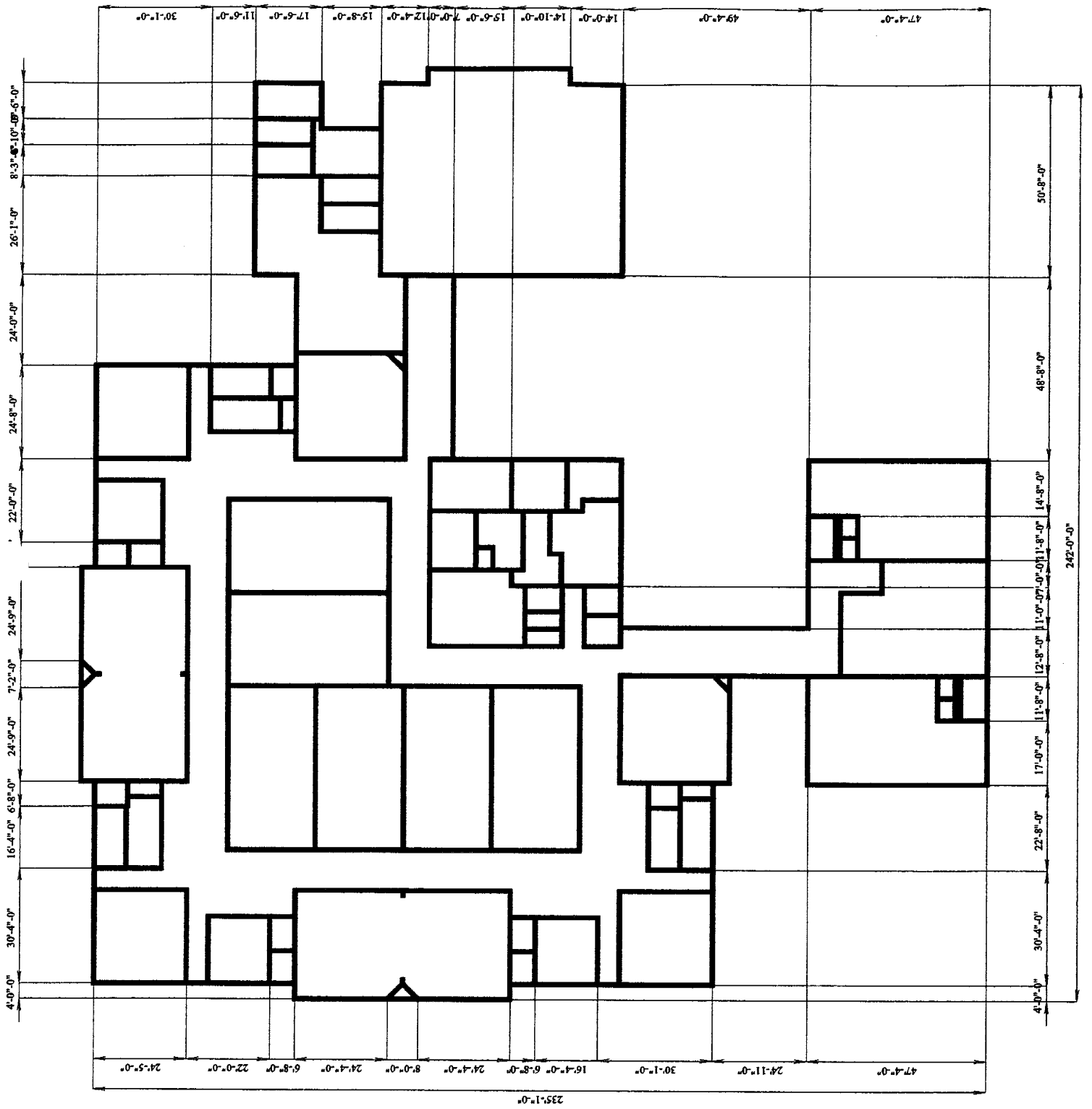


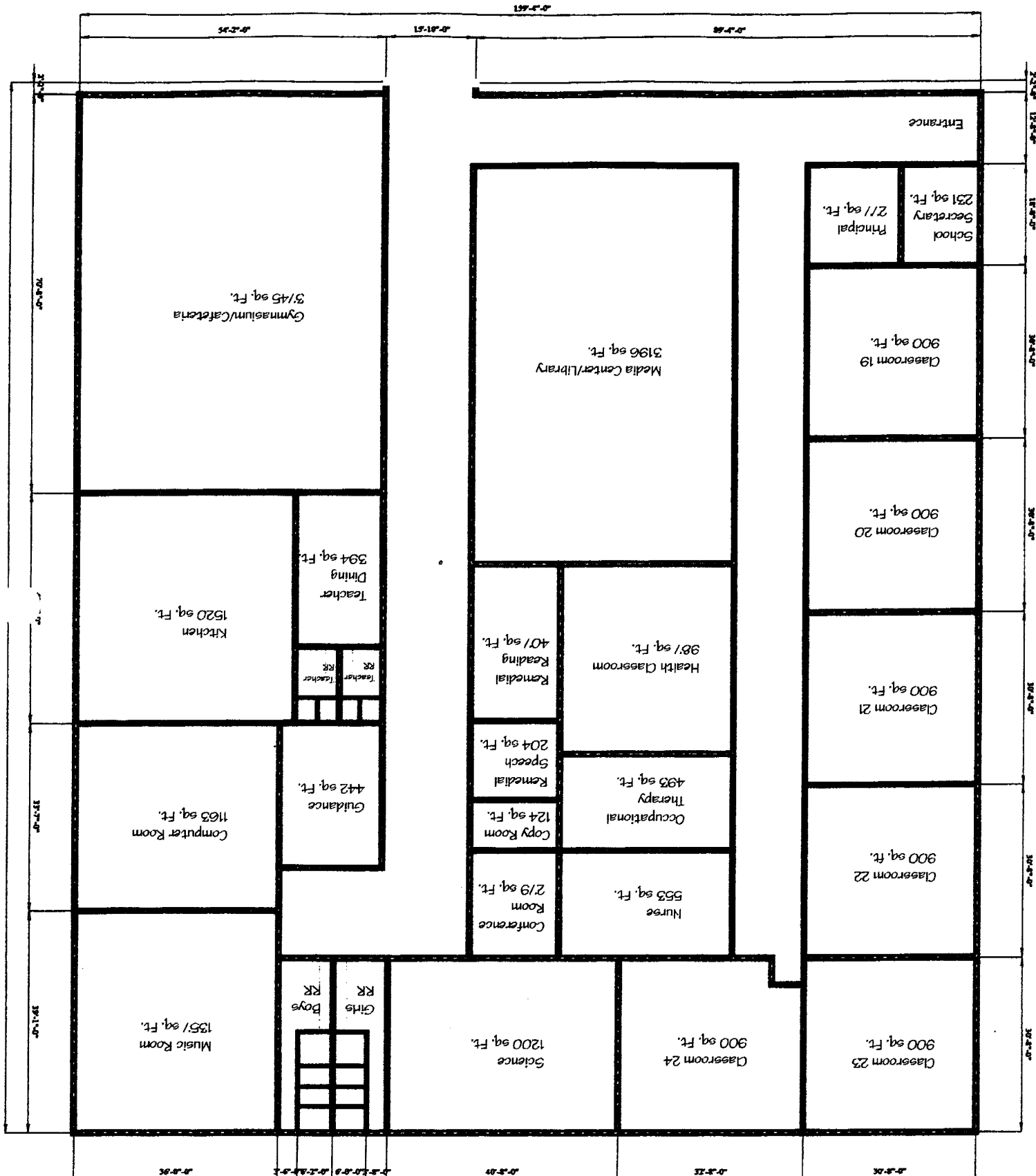














# **The Stow School Building Committee**

**2002-2005**

## **A Summary of Work, Findings, and Recommendations**

**Respectfully Submitted by:**

**Chris Way (Chair)**  
**Edmund Green (Vice Chair)**  
**Gregor Trinkaus-Randall**  
**Gary Bernklow**  
**Sara Kilkenny**  
**Brian Burke**  
**Anne Draudt**  
**Greg Jones**  
**Carole Makary**  
**Steve Dungan (ex-officio)**  
**Greg Irvine (ex-officio)**  
**Bill Spratt (ex-officio)**  
**Michael Wood (ex-officio)**

***Presented to the Board of Selectmen:  
November 8, 2005***

## Quick Summary:

to date

The SBC has found that the current elementary schools in Stow are overcrowded, too small for current educational requirements, and in poor condition. This document summarizes three and half years of work by the SBC evaluating a wide range of options to solve the current problems with Pompo and Center. This work has included an exhaustive review of options which included reuse of the existing schools, reuse of the existing sites with new schools, and new schools on a new site. The SBC has also been looking for a possible school sites for since Jan. 2003.

In addition to this work the SBC has been involved in trying to address some of the most immediate issues with the schools through the health and safety renovations completed in 2004, the removal of the risers in the amphitheatres in Pompo, and the purchase of modular classrooms for Pompo.

**Recommendations: A new PreK-5 school on a new site - Minuteman**

On November 1, 2005 the SBC voted unanimously to recommend the construction of a new PreK-5 school on a new site. They also unanimously voted to recommend the Board of Selectmen exercise the Town's right of first refusal on the Minuteman property for a mixed use development that would include a site for the new school.

## Introduction:

## Education of Our Schools – Is there a problem?

The children and teachers of Stow deserve better than they have. Neither of our current elementary school buildings incorporates all of the program standards outlined by the state Department of Education. Educational space averages about 2/3 of the state's standard. The schools do not have sufficient designated art and music rooms, cafeterias, gymnasiums, or library/media centers. Nor do they have adequately-sized computer and science labs, health and guidance suites, or administrative space. The separation of the schools in the current configuration requires that our schools function without a principal in attendance half the time. Specialists - including music teachers, art teachers, etc. - are required to travel between the schools to serve all our elementary students. -50

The schools are also in poor condition, from stained ragged carpets and damaged ceilings to outdated building systems. Furnishings and equipment are outmoded or inadequate in most facilities, with some components in functional disrepair. Stow actually ended up with much of the furniture discarded by other district schools. The open classroom portion of Pompo makes it very difficult for some children to learn. They can hear several classes being conducted at once and have a huge amount of aural and visual distractions. While the teachers and staff are making amazing use of the space they have- the stress of working in substandard conditions shows in terms of distracted children, higher teacher turnover, and less effective education.

In addition both sites pose multiple challenges. The parking at both schools is inadequate and often completely overcrowded. The playfields at Pompo are unusable for much of the year due to wetness- so the children are confined to the small asphalt play space which has now become the parking space for the modular classrooms. The sites are too small to support any major additions- just the modular classroom units that are planned for the next few years will take up most of the available room on the sites and further reduce available play space for the children.

*See appendix A for more information about the existing schools*

## The SBC and Stow:

### ol Building Committee – What is it?

In May 2002 the annual Town Meeting appropriated \$125,000 for a school feasibility study for the purpose of "...conducting a building needs analysis and feasibility study, preparing a long range school plan and educational specification, and for developing the conceptual design drawings and project cost estimates for the remodeling, reconstruction, expansion or making of extraordinary repairs to the Center and Pompositticut schools, and for costs incidental and related thereto..."

The SBC was formed with five voting member appointed jointly by the Selectmen and the School Committee with associate members appointed by the SBC. The SBC includes at least one member from the Board of Selectmen and one from the School Committee. In addition the superintendent of schools, the elementary school principal, and the facilities manager for NSRD are all ex-officio members.

### The Building Committee 2002-2005 – A summary

- The SBC commissioned the architectural firm Design Partnership of Cambridge (DPC) to do a feasibility study which included evaluation of the existing school buildings and sites which concluded that the buildings were in poor to fair condition, in need of repair, and undersized for today's educational requirements. *(See appendix B for a summary of findings -A copy of the full report is available in the town clerks office for people to review in the Town Building and Randall Library)*
- In its efforts to provide information to the community and receive citizens' input, the SBC has held many public forums; met with all the boards in Town (many more than once) published regular articles and letters in the local newspapers, and held biweekly committee meetings for the last 3 ½ years.
- The SBC has also commissioned two demographic studies to help quantify future enrollment growth. *(See appendix C for more information on enrollment)*
- The SBC and school district have worked together to create and refine a set of educational guidelines for what sorts of spaces are required to

accommodate our current educational practices. *(See appendix D for the educational specs)*

- The SBC proposed and managed a series of health and safety renovations at Pompo and Center to address the most pressing concerns at the schools and ensure the health of the Town's children while a long term solution was evaluated. This work was substantially completed in August 2004 on time and approximately \$210,000 under budget. *(See appendix E for details of what was done as part of this project)*
- The SBC evaluated short term solutions to space problems at the schools and supported articles to remove the concrete risers from the amphitheatres at Pompo to create additional classroom space and the purchase of two modular classrooms for Pompo.
- The SBC has commissioned and reviewed nineteen different plans for possible elementary school solutions ranging from minimal renovation and reuse of the existing buildings, to new building on each site, to a new PreK-5 on a new site. Each of these has been evaluated based on the cost estimates, the quality of the educational environment provided, the way the project would meet community needs, and the overall feasibility of the project. *(See appendix F for a summary of options reviewed to date)*
- The SBC has reviewed all available land in town and has commissioned the evaluation of 9 parcels of land and identified two sites which would be appropriate for a school project- one of which is now available to the town to purchase. *(See appendix G for a list of all land sites investigated to date.)*

It has been difficult to reach a town wide consensus on the best possible solution for the elementary schools. Although the SBC has resolved on three separate occasions (2002, 2004, and 2005) that the best solution is to build a new school on a new site - they have been consistently challenged to defend that conclusion and tasked to go back and look at more options.

#### Community Input – What does the town want?

The community input that the SBC received has been completely varied- and most often reflect one of two opposing points of view. From town boards and some citizens groups we have heard that the existing school sites must be maintained, that the schools only need a fix up, that the Town will not support a tax increase to support new facilities. From the public forums, from the studies

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by DPC, and from interviews with teachers and administrators we hear that the schools are truly at their maximum capacity, they are physically in poor condition, that they do not provide an environment conducive to good education, that the sites are limited by wetlands, and that they can't understand why a project isn't underway already. *nic*

Because of the divided nature of the community feedback there is no real possibility of SBC coming up with a plan that will have full support of the Town as a whole. The best the SBC can do is listen to all opinions, look at all the facts, and in the end come to a conclusion that is responsible both educationally and fiscally and that will offer the best long term solution for the elementary schools in Stow.

## **A Timeline of SBC work to date:**

### **2001**

First Steps - Identifying the problem

In 2001, Town Meeting approved the creation of a School Building Study Committee to study future building needs for the Kindergarten through fifth grade population of Stow. This committee recommended a full feasibility study and the creation of the SBC.

### **2002**

Feasibility Study – Objective: find out what is wrong and how to fix it

The SBC was created at annual town meeting 2002. It moved quickly to select and commission the architecture firm DPC to conduct a feasibility study. The goal of the study was to determine the current state of the schools and explore all the options available using the existing Pompo and Center school sites. Based on information gathered from the superintendent, principal, and staff, and in compliance with SBA regulations for reimbursement, DPC presented several conceptual building options to the committee including: renovation/addition to both Pompo (pre-K to 2) and Center (3 to 5); new Pompo (pre-K to 2) renovation/addition to Center (3 to 5); renovation/addition to Pompo (pre-K to 1) and Center (2 to 5); new 2 story pre-K to 5 school on the Center School site; new single story pre-K to 5 school on the Center School site; and a new 3 story school

on the Center School site. Estimated project costs for the above options ranged from approximately \$21.5 to \$29 million.

The committee narrowed these options to two: addition/renovation to both Pompositticut (pre-K to 1) and Center Schools (grades 2 to 5), or a new, two story building, pre-K to 5, on the Center School site. The cost of the first option involving both schools, with a total of 108,000 sq ft was estimated to be \$23.3 million, with a cost to the town of \$12 million after SBA reimbursement. The cost of the new pre-K to 5 school, at 105,000 square feet, was estimated to be \$21.5 million, with a cost to the town of \$10.8 million after SBA reimbursement. The estimated costs to the town were predicated on the project being accepted by the SBA in FY 03.

The committee also obtained estimates of costs to repair and upgrade to current code Pompositticut and Center Schools without any expansion. These costs were estimated at \$4.8 million for Pompo and \$4.9 million for Center, for a total of \$9.7 million. This would have provided no new space, and 100% of the cost would be borne by the town. This did not include the costs for portable classrooms that would be needed to accommodate the return of PreK and enrollment growth.

**Results of the Feasibility Study - A new PreK-5 at Center (or a new site?)**

In late 2002 the SBC decided to recommend a PreK-5 on the Center Site- however as the plan developed it became clear that while it might be possible to just fit a PreK-5 at Center, there would be no room for expansion. After discussion with other town boards the Committee decided that providing room for expansion to accommodate the student population at build-out was critical, so the committee decided to ask the town to consider a new school on a new site.

## **2003**

**Change in direction - The search for land added to the agenda**

At town meeting in Jan 2003 the SBC brought an article before the town requesting \$60,000 "for the purpose of preparing engineering plans and reports, conducting site analyses and studies, obtaining project cost estimates, developing design plans and specifications, and incurring any other costs incidental and relative thereto for and including but not limited to, the current Center School and Pompositticut School sites, for the purpose of considering school building and construction needs in order to determine the school building requirements to house all eligible students grades pre-K through grade 5" The Selectmen

proposed an amendment to the motion "...the current Center School and Pompositticut School sites, *provided that the School Building Committee shall further evaluate the feasibility of renovating and/or adding to Center and/or Pompositticut schools,.....*" The motion passed.

In June 2003, the SBC voted unanimously to recommend that the Board of Selectmen pursue acquisition of the Habitech parcel. Unfortunately, the developer did not allow the SBC to have its consultant walk this property and the Selectmen were unable to establish negotiations with the owner.

#### SBA Moratorium – A whole new ballgame

In July 2003 the SBA placed a moratorium on the school building assistance program due to a backlog of over 400 projects on the priority waiting list which totaled over 4 billion dollars. This significantly changed the economic implications of a school project for Stow and caused the SBC to review the situation. While their task remained a long term solution for the schools it became apparent that there would be a need for some interim solutions.

#### Short Term Solutions- Health and safety repairs at existing schools

The SBC decided to propose a short-term project to address critical health and safety issues at Pompo and Center. The Committee hired a professional engineering firm to evaluate both facilities and the recommendations from that review led to an infrastructure improvement project budgeted at approximately \$595,000. Voters approved an article for this amount at the Annual Town Meeting in May 2003. During the rest of the year the SBC worked to define the scope for the project and awarded a contract to DPC to develop plans for the health and safety work to be done in the summer of 2004.

#### Town Government Feedback- Back to the drawing board

The SBC received input from members of Planning Board, Capital Planning, and Selectmen in the latter half of 2003. The Selectmen Chairperson summarized five options that the board wished the SBC to consider:

1. Perform basic repairs to both buildings.
2. Renovate and add to both buildings.
3. Build a new school on an existing site.
4. Build a new school on a new site.

5. Option 1 or 2 above plus purchase land for future school use.

The SBC reviewed the Selectmen's feedback and commissioned the architect DPC to develop conceptual plans and cost estimates for the following options:

Short Term: Temporary Solutions

- 1-A Add Modular Classrooms
- 1-B Build Add-on Classrooms

Long Term: Using Pompo and Center Schools

- 2-A Minimal Add/Reno (without using SBAB standards)
- 2-B Complete Add/Reno to SBAB standards

Long Term: New Site / Partial or Total New Construction

- 3-A Build New Pre-K to 2 on New Site & Add/Reno Center
- 3-B Build New Pre-K to 5 on New Site

## 2004

Conclusion of the Second Round of Studies: A new PreK-5 on a new site

After receiving the final conceptual plans and cost estimates for all of these options (see appendix F for more information results) the SBC reached the following conclusions:

- Add/Reno at Pompo (with or without SBAB) is not a cost effective or wise alternative because the site and building are too flawed.
- Expansion of either building by more than 10% would force compliance with current building codes and accessibility standards adding significant expense.
- Renovation of existing buildings is a more expensive option than new construction.
- A new Pre-K to 5 (or at a minimum Pre-K to 2) should be built on a new site as soon as possible.

The SBC presented these options and the following recommendations to the Selectmen in March of 2004.

- This Committee was charged to develop a long-term solution for the Stow Elementary Schools. We recommend building a new school on a new site as soon as possible since this is the best and most cost effective long-term solution.

- We recommend the use of modular classrooms as a temporary measure to accommodate overcrowding until the new school is done.
- Since possible school sites in Stow are very limited (less than 10) and disappearing fast, we recommend that the town act quickly to identify and purchase land for a new school.

#### 2004 Annual Town Meeting – The town is given some choices

The Selectmen did not agree with the findings of the SBC and subsequently decided to sponsor an alternate warrant article for renovations and additions at Pompo and Center. The SBC decided to take their recommendations to Town meeting and held a series of public forums to help educate the voters on the issues. They sponsored several warrant articles relating to short and long term school needs. These were grouped together on a single night of town meeting along with the Selectmen's school renovation article and two proposals for the purchase of the O'Grady property.

- Article 29 requested \$230,000 for the purchase of a 2 classroom modular unit to accommodate short term space needs at Pompo. This passed by more than 2/3 and was passed by the vote at the May 25<sup>th</sup> election.
- Article 30 requested a transfer of \$35,000 of available SBC funds to pursue planning for a new school on a new site. This was approved.
- Article 31 requested \$7.5 Million for improvements and construction at existing schools. This did not receive the 2/3 majority needed to pass.
- Article 32 requested \$800,000 for partial acquisition of the O'Grady property. This was defeated.
- Article 33 was a citizen's petition recommending purchase of the full O'Grady property. This was defeated.
- Article 34 requested a transfer of \$35,000 of available SBC funds to pursue land acquisition for a new school. This was approved
- Article 35 requested \$100,000 for the removal of the risers of the amphitheatres at Pompo and conversion into classrooms. This was approved.

The SBC took away a mixed message from the town meeting. While all the SBC sponsored articles passed, which implied support for the new school/new site concept, there had been some enthusiastic champions for the idea of reusing Center school and keeping "the campus concept" alive. Although the Selectmen's 7.5 million dollar proposal was defeated there was a feeling that a lot of people had come away confused about what the town's priorities should be ?

and what the actual cost of additions and renovations would be. The SBC decided to focus first on an outreach project, meeting with all the town boards and holding public forums to try to determine what the true feelings were in town. The SBC also decided to actively pursue a search for land for a new school.

They  
Do not  
listen to  
Bodies!

### Community Outreach – An exercise in listening

At the start of the summer of 2004 the SBC began meeting with various boards and committees to learn what people thoughts were about the SBC's progress to date. Members of the SBC met with the Capital Planning Committee, the Finance Committee, the Planning Board, the Board of Selectmen, School Committee representatives, and the Concerned Citizens of Stow. The SBC also met with some of the sponsors of Article 31 to try to understand their concerns. The SBC also held a public forum to hear the questions and concerns of parents and voters in general. Several conflicting themes emerged from these outreach sessions:

- Concern that because of the physical limitations of the schools students are not getting the education they should be, not getting a full share of time on the playground, not getting programs they would have otherwise, etc.
- Concern about the potential cost of a school building project and its impact on Stow's tax rate (especially for seniors and low income families)
- Interest in reducing the impact of additional taxes on those least able to afford it
- Concern that the project was not done yet- frustration that Stow's students are being educated in an environment that is significantly substandard compared to other towns in our district.
- A feeling that we should try to renovate one or both of the existing schools rather than "throwing them away" and buying land to build a new school.
- A concern that the disruption of a renovation project (where would the students go during construction?) would be major and should be taken seriously.
- Full support for a new school or renovated school as long as it accommodates the districts educational objectives
- Disagreement about the number of additional classrooms we will need over the next decade and beyond. Concern that the SBC's enrollment projections are much too high compared to Stow's growth over the last 10-20 years

Notes

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- Concern that the enrollment numbers might be too low given that we are talking about a building that would open around 2010 and our maximum enrollment projections are based on 2013
- Attitudes toward Pompositticut school are generally negative, primarily because of the disruptive environment and lack of traditional classrooms. Many people seem to think that a fire station is a good use for the building

#### Site Search – Land, land, everywhere, but....

The SBC began a serious search for land in 2004 after receiving funds at town meeting to perform evaluations. Driving through Stow most people can't imagine that there would be any difficulty finding open land in Stow- but in fact the possible sites are very few and disappearing fast. The SBC first looked at the map of the town and identified any parcel that appeared large enough to accommodate a new school. A few of these were eliminated at the outset because they ranked very high on the Open Space Committee's ranking list of areas that should be conserved to preserve the rural character of the town (mostly orchards and farms). The SBC wrote letters to all the remaining landowners and followed up with phone calls. While there were a couple landowners initially willing to talk to us, Massachusetts General Laws mandate that the town has to put out a public request for proposal (RFP) for land purchases where landowners would have to come forward and offer their land for purchase, so the SBC could not negotiate without the landowner responding to an RFP.

During 2004 there were several options that appeared available and were evaluated. The O'Grady property came out of chapter 61- and while it would have made a very good site for a new school the town chose not to purchase the land. The Quirk property was evaluated and found unsuitable for a new school site. The Kane property was evaluated and found to be a suitable site for a new school- though it would be expensive to develop due to wetlands crossings. The SBC also commissioned an appraisal of the property to establish a fair market value for the property which came back at \$3 million. The Pompo site was re-evaluated and found to be too small for a PreK-1. The Center school site was also evaluated in great detail as follows. (See appendix D for a full list of sites evaluated)

#### A Stow School in Bolton? The Future Electronics Site

The SBC was asked to evaluate the Future Electronics site as part of a joint use venture with the town of Bolton. The site is on the border of Stow and Bolton (on the Bolton side) and is comprised of a series of office and warehouse buildings with approx. 300,000 sq. ft of space sited on approximately 72 acres. While there were some immediate concerns about the site - including the location in Bolton, the existence of a cell tower on the property quite close to the buildings, and the proximity of an actively monitored superfund hazardous waste site adjacent to the existing playing field, the SBC felt that the potential cost saving required a close look at the property. They commissioned DPC to prepare a school plan using the existing buildings. DPC came back with a plan which used some of the existing office space and some warehouse space. This left approximately 200,000 feet of the building unused. The interior space seemed to work fine, but on the site plan the parking, traffic, and playfields for the school used up the entire useable site area, leaving no room for parking (or additional playfields) for whoever would use the rest of the building. The cost estimates for the project also came in higher than for a new school on a new site in Stow. There was also concern about the appropriateness of an elementary school sharing a site with a warehouse use that would have tractor trailers arriving and departing in close proximity to the play spaces. For all the reasons above the SBC concluded that Future Electronics was not a suitable site for a Stow elementary school.

#### Add/Reno at Center School for a PreK-5 – One more look

In response to the strong feelings expressed about the Center site and the campus concept at the 2004 town meeting, along with the strong opinions expressed in the following outreach that this option had not been fully explored, the SBC decided to revisit the idea of an addition/renovation project to provide a PreK-5 at the Center site. The SBC commissioned DPC to prepare a conceptual plan for an expanded, renovated school at the Center site that would be large enough to accommodate grades PreK -5 and which would maximize reuse of the existing building and add a second floor to the structure. (See Appendix H for the full instructions for this work).

In addition the SBC reviewed and walked all the possible parcels that are accessible from Center and had all the wetlands flagged by the Stow Conservation Commission and found that while there are some uplands that could be used for playing fields the total useable land area added to the current site would only be 1/4 to 1/2 acre. DPC did identify a small area of wetland which could be filled and replicated (the law allows up to 5000 sq ft) which would allow access over to Hartley Road.

During the course of the study DPC produced two plans – one larger one based on a preliminary educational needs assessment from the School District, and another severely scaled down at the request of the School Building Committee. In reviewing the second, smaller option the committee noted the following concerns

- There was inadequate parking and no room to develop a traffic pattern that did not require the students to cross traffic to get to the play space
- Play space was reduced from the existing Center school- while the school population was more than doubled
- The building would be very large and potentially overwhelming on the site- there was discussion about whether this was appropriate for Stow- especially in the Center of town.
- There is no way to keep the grade K-2 separate from grades 3-5 – which had been the plan in the original PreK-5
- The re-use of Center resulted in an inefficient floor plan with a very long narrow school resulting in long walks to the gym/cafeteria with various grades mixed together
- The smaller version did not provide adequate space for the enrollment projections and district space requirements. There was concern that this school would be at maximum capacity as soon as it was built.
- The site would be significantly undersized for the school building and there would be no room for expansion beyond the 10 year projections.
- The school would have to be vacated during construction. There was concern that this would be very disruptive and would require the construction of an entire temporary school out of modular units on the site or at another location.

## 2005

Conclusions from the Center School Study - The site is too small for a PreK-5

After reviewing all these factors the School Building Committee decided unanimously that there is insufficient space at the Center site for a preK-5 school. The SBC then began the process of reviewing the other options available to the committee. These include:

- An add/reno for grades 3-5 at the Center site with a new PreK- 2 on a new site
- A new preK-5 on a new site

## One school or two- A debate with many angles

The SBC asked DPC to develop conceptual plans and cost estimates for the one and two school options on the Kane property. This property was used because it was the only one we were aware of then that seemed to be suitable and potentially available. The add/reno for grades 3-5 at the Center site with a new PreK- 2 on the Kane property came back with a cost of approximately \$40 million. The new PreK-5 on the Kane property came in at \$30 million. Based on these numbers the SBC decided in favor of a PreK-5 on a new site.

In the fall of 2005 a review of some of the space assumptions used in DPC's two school option has led the SBC to determine that the overall size of the schools in the two school option was larger than required and therefore the price difference might not be as great as initially estimated. The SBC formed a subcommittee which evaluated the information and concluded that the price difference was more likely to be in the range of \$2-3 million. The SBC debated the pros and cons of both options, and despite the appeal of a central location and smaller schools, the committee felt that the higher cost, the significant disruption to students, and the complexity/cost of managing two schools (and two building projects) all made the PreK-5 a better option for Stow. *(See appendix I for a full list of the pros and cons)*

The SBC's recommendation: A new PreK-5 on a new site... but where?

As of April 2005 the SBC resolved once again that the best long term solution for Stow's elementary schools is to build a new PreK-5 on a new site. Since then they have been actively looking for land parcels that would be appropriate for a school site. As mentioned before, the SBC had made contact with a few landowners initially willing to talk to the SBC but Massachusetts General Laws mandate that the town has to put out a public request for proposal for land purchases where landowners have to come forward and offer their land for purchase. The SBC conducted an initial RFP in June 2005 looking for parcels of 20 acres or more. It yielded no results.

Several boards and citizens have repeatedly questioned why the town can't just fill the wetlands at Center. The SBC first addressed this with the local Conservation Commission in Stow and was told that there was little to no chance of getting approval for any filling beyond the 5000 sq. ft. already proposed in the

Center plan. After several further questions the SBC commissioned a further site evaluation by site and civil engineers who contacted several authorities on wetlands use- who all confirmed this opinion. While there are urban myths about some places being allowed to do fill wetlands- the only one the committee's experts could actually confirm was for the widening of route 3. The consultant noted that you have to demonstrate a compelling need why you need to use a specific site to be allowed to fill wetlands. While there is compelling reason why you cannot expand a highway anywhere but adjacent to the highway, there are in fact alternate sites for an elementary school in Stow. Based on all of these evaluations the SBC has concluded that filling the wetlands behind Center is not a viable option.

Many people have asked if the SBC has considered using some of the conservation land that Stow already owns. The SBC met with the Chairman of the Open Space Committee and others with expertise in this area and learned that taking land out of conservation is a serious legal and ethical matter. The main concern is the breach of faith with the landowner who sold the property at a reduced rate in the expectation that his/her property would remain under a conservation restriction in perpetuity. The SBC decided at that point not to pursue acquisition of conservation land. In the fall of 2005 however there was a renewed discussion of the Babriki parcel which was bought from the family's estate rather than donated to the town. The SBC reviewed this option and consulted with several boards and conservation groups in town. Because of the self help funds used in the purchase, removing this land from conservation would require the approval by various town commissions as well as the State Legislature. While this might be possible, two concerns came up in the discussion of this: one is that it is likely to be a lengthy process and second was that taking land out of conservation could result in the State not granting self help funds in the future. The SBC decided again that they do not want to pursue the use of land currently in conservation when there are good sites available to the town for purchase.

During the second half of 2005 the Cushing property (a chapter 61 property which the town has first refusal on) and the Corzine property came to the SBC's attention and were evaluated. The properties were evaluated both as separate parcels and for a joint use and were found in all scenarios to be too steep and inaccessible for a school site. The consultant noted that even if a school could be fit onto Corzine the cost of development would cost millions more than the Kane or Minuteman. The SBC issued a second RFP for a school site in October of 2005. As part of the RFP process the SBC also sent letters to all landowners of parcels

with sufficient acreage who had not been contacted before (these were properties at the top of the Open Space commissions ranking- farmlands and orchards). The owner of the Corzine property did answer the RFP asking \$2.9 million for the 22.3 acre property. However, due to the reasons stated above the SBC decided not to pursue the property.

As of Oct 2005 the Minuteman property was offered to the Town as it is coming out of Chapter 61. The SBC has evaluated this property and found it to be a good potential site for a PreK-5 school. There is a large flat meadow, good road frontage, and access off of an appropriately sized town road. The consultant who has been evaluating properties for the SBC ranks Minuteman second only to O'Grady of the properties that have been looked at. Since O'Grady is no longer available this makes Minuteman the best site currently available to the town. The price for the property is \$4 million, but with a mixed use development there is a good chance that the actual price for the school site could end up much lower. Since the town has the right of first refusal on it the town would not have to go through the RFP process. To purchase the property the selectmen would need to vote to exercise the right of first refusal then the purchase would need to be approved at a special town meeting and passed at the polls. The SBC has voted unanimously to recommend the Board of Selectmen exercise the Town's right of first refusal on the Minuteman property for a mixed use development that would include a site for the new school.

#### The Future of the Existing Schools- What will happen to Pompo and Center

If Stow does build a new PreK-5, Pompo and Center will close once the new elementary school are open. When the School Committee determines that a school building is no longer necessary for the education of students, the building is turned back to the Town. The Selectmen will have the final say on its reuse.

We would recommend the formation of a citizens committee to study all the possible re-utilization options for the closed schools, consistent with the needs of the community and the preferences of citizens. The Pompo site has a deed restriction that requires a municipal use. Some people have suggested that it would make a good fire station, senior Center, or community center. The SBC has discussed renting out Center as a temporary measure to preserve it for future use as a 5-6 school. The closing of these schools is not anticipated until around 2008 at the earliest, so there is sufficient time to consider the best options for each building and land area.

## Funding – What can the town afford?

### Costs – How much is reasonable?

Renovation fees -  
2006-13.15

The current estimate for a PreK-5 on a new site is \$30 million for construction- the land cost would be additional. Many people say that the town simply cannot afford this. The truth is that it is the least expensive option that addresses the needs of the school system and can also be eligible for SBA funding when it is reinstated. Many people suggest solutions that they think will be more "frugal", such as just patching up the existing schools, reusing Center, reusing Center and Pompo, using existing industrial space, etc. The fact is that in the end these options fail for one of three reasons. Some do not address the real long term educational need of the schools – for example a simple rehab at the school with some modular classrooms does nothing to address the fact that the schools other educational spaces are seriously undersized now. The others would simply cost more money. Given the cost of site work, any solution on two separate sites will be at least a million dollars more expensive than a single school solution. Three schools with three sites will only add to the cost. Stow has not made a major investment in its elementary school buildings in 34 years. The other factor is building a project that can accommodate future expansion as the town grows to build-out. While a PreK-5 at Center might save some money in the purchase of new land now, it is almost certain that the town would be faced with another major elementary school building project in the not too distant future. The SBC wants to plan for that expansion so that classrooms can be simply added to the existing school in a simple and cost effective manner.

IS it better  
to purchase  
the building?

The SBC's conclusion is that a new school on a new site is the most cost effective solution to the long term needs of Stow's elementary schools.

### State Building Assistance – If we build it, will it come?

Prior to July 2003 the Massachusetts Department of Education's School Building Assistance Program provided major funding for most school projects. Since then the program has been eliminated with a new MSBA projected to be in place and starting to accept applications in 2007. Unfortunately for Stow, the school's crisis comes when there is no available state funding.

If and when it comes back on line, SBA funding is likely to mitigate about half of the cost of a school project. The current plan is that the state would pay this amount upfront in a lump sum. The town would have to bond the balance likely

over a 20 year bond period. To qualify for state reimbursement under the School Building Assistance Act, a community must meet certain stringent state requirements regarding site and building standards, an educational plan, and a facilities maintenance plan. Once a project is approved for funding, the state pays the established reimbursement percentage on all allowable costs associated with the project. Reimbursable costs include staff and consulting expenses associated with developing the funding application, all design and construction expenses, and the purchase and installation of all furnishings and equipment costs necessary to result in a "turnkey" operation. *(See appendix J for more information on state School Building Assistance)*

State funding is now on a moratorium and it is unclear how soon full funding will be restored to the program. Applications will start being taken in 2007 and each year grants will be given based on a needs analysis until the funds are expended. The SBC definitely plans to have a project either underway or fully planned by July of 2007 so that we can put in our application as soon as possible. However, there is no way of telling when that might be approved. The funds are limited and there are schools with greater needs than Stow- so it is possible but unlikely that we would be approved in the first year. If the application is not approved the first year the town can reapply until it is approved. There is a small chance that some projects would not be funded at all. The SBC has had to weigh the pros and cons of proceeding without SBA funding.

#### **Do it now? - The cost of moving forward**

If Stow decided to go ahead with a project they will have to carry the total cost until the project receives SBA approval- but no one can know when that will be. With the current construction cost estimate of a roughly \$30 million (excluding land cost) the SBC has figured that this would add approximately \$1000 to the average tax bill annually over the bond period. If and when the town received SBA approval and funding this would likely be reduced roughly by half for the average tax bill. However, it is very difficult to make any plans based on SBA funding. As discussed above there is going to be a limited amount of money available each year and some school districts have a greater need than Stow. Some people find this hard to believe, but there are schools with classrooms in basements and hallways, classrooms with no toilet facilities, failing buildings, etc. The current SBA says that projects that proceed with construction prior to 2007 will be considered equally with those that wait for SBA approval.

#### **Wait for state funding? - The cost of doing nothing**

If the town does not go ahead with a school construction project it faces adding modular classrooms each year to already overloaded facilities and sites. The schools are in poor condition and are overcrowded. Our schools today provide approximately 114 sq. ft. per pupil compared to the State average of about 150 sq. ft. per pupil. To put this in perspective think that most schools have an additional 5 X 7 area per student- which if you put them all together would equal about 20,000 sq. ft. or a building 2/3 the size of Center. The schools at this point are almost all classroom space. While the class sizes have remained relatively small, there is very little space left for a library, art rooms, computer rooms, science labs, counseling areas, offices, etc. Each school has a multifunction gym/cafetorium which is overstretched. Neither school has a full kitchen so lunches have to be delivered from Hale. Adding more students in modular classrooms only adds more users to these already overcrowded facilities.

If we wait for SBA funding the schools are going to get more overcrowded. Modular classrooms that will be added will further reduce the already small play spaces. The cost of construction will go up. If we act now we will start paying a bond based on today's construction costs. Each year we wait will add at least \$750,000 (3.5%) in inflation alone to the project. In addition rises in construction costs have been far outpacing inflation and are likely to raise the costs even higher. If we wait to buy land the costs for sites will go up as the options become even more limited. Each year we wait will push out the 10 year enrollment project another year and likely also necessitate a larger building. Each year we wait our children are being schooled in a substandard environment, our teachers are working in schools that do not support their mission, and the town is spending money maintaining older buildings when it could be putting that money to fixing the problem.

The SBC feels that we cannot afford to wait. The committee recommends that Stow work together as a community to purchase land for a new school and start construction of a new PreK-5 as soon as possible. The SBC hopes there will be a special town meeting in Dec. 2005 with an article for the purchase of the Minuteman property and an article to give the go ahead with detailed design and planning of a new PreK-5 school. If we approve both articles in December 2005 it is possible that we could have a new facility open and ready for students in 2008/2009.

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If your questions about the SBC's positions and new school plans are not answered in this website, please send them via e-mail to SBC Chair Chris Way at [jcmdjway@aol.com](mailto:jcmdjway@aol.com) or in a note to the Stow School Building Committee Town Building, 380 Great Road, Stow MA 01775

**Please include your phone number and e-mail address in all correspondence.**

## Appendix A: Info on existing schools

### Pompositticut School (K-2)

- Pompo was built in 1971.
- Building footprint: 36,415 sq. ft + two modular classrooms
- Site 19.2 acres (of which about half are wetlands)
- # of classrooms: 13 (including modulars)
- Capacity now: 260
- Current enrollment: 322
- Sq. ft. per student: 113

### Center School (3-5)

- Center was built in 1954 with additions in 1957 and 1964
- Building footprint: 36,360 sq. ft.
- Site 15 acres (of which about a third are wetlands)
- # of classrooms: 12
- Current Capacity: 300
- Current enrollment: 272
- Sq. ft. per student: 134

### Bolton Classroom housing Integrated Preschool

- Integrated preschool is a district requirement. It provides preschool for children with special needs.
- Because the best educational practice is to have these children mix with non-SPED learner, the classes are mixed.
- Non SPED students pay for the preschool.
- Stow's preschool students go to Bolton because Stow has no classrooms. However since Bolton schools need the space back, Stow will need to accommodate its own integrated preschool population in the near future.
- Current enrollment – 18 in the Bolton Program.
- Sq. ft. per student: NA

## Appendix B: Info from Feasibility Study

- The schools are overcrowded. *Update w/ 2005 info: Current capacity of both schools is 560 with current enrollment of 594. If we include the 18 preschoolers in Bolton - current total PreK-5 enrollment is 612. Enrollment is projected to be 722 by the year 2018.*

*A combined team 13 years*

*128*

- Center and Pompositticut schools lack the necessary instructional and classroom space to meet the needs of Stow's current and growing population of preschool through fifth grade students.
- Both Center and Pompo school buildings are substandard relative to state educational standards and to other schools in the district. The schools will fall further below basic elementary school standards without the necessary capital investment to address the need for more space for classrooms and educational programs.
- It is in the best interest of the town to provide a physical environment consistent with the excellent education which is being provided in the schools.
- It would be unwise to spend money adding to school buildings which provide a sub-standard educational environment today and have little room for expansion. (511-2-2)

#### Appendix C: Info on enrollment projections

Current Enrollment projection is for 722 students in 2018.

Date	Source	Time-frame	Grades	Projection	PreK	Total
Nov-02	Rickes	2013	K-5	727	45	772
Nov-02	DPC	2013	K-5	647	45	692
Feb-03	Rickes	2013	K-5	712	45	757
Feb-04	DPC	2013	K-5	584	45	629
Apr-04	DPC/Dungan	2013	K-5	676	45	721
Sep-04	DPC/Jones	2013	K-5	630	45	675
Oct-04	Dungan	2013	K-5	588	45	633
Apr-05	NESDEC	2018	K-5	687	35	722

Current PreK-5 enrollment: 612. Projection of 722 reflects average increase of only 9 students per year.

#### Reality Check:

Enrollment at Pompo and Center has increased by 63 students since 2002 when the feasibility study was done as follows:

2002/3	531
2003/4	536
2004/5	551
2005/6	594

This is an addition of roughly 16 students per year. We are already 8 students ahead of the most recent projection after one year.

*LARGE DEVELOPMENT?*

#### Appendix D: Info on educational specs

*current SPED program*  
**Current Ed Specs are based on an enrollment of 722 and call for the following:**

- 8 PreK and Kindergarten classrooms (assumes existing partial full day program)
- ✓ 30 General classrooms (6 per grade – which will all be needed by 2009)
- 1 Health classroom –
- 2 Art rooms
- ✓ 2 Music rooms
- 4 Science and computer rooms
- 1 Library/media center
- 1 Gymnasium w/ 2 Phys Ed teaching stations
- 1 SPED classroom
- 2 SPED learning centers
- 4 SPED offices (for testing, conferences)
- 1 Occupational therapy room
- 2 Remedial reading rooms
- 2 Remedial speech rooms
- 1 Cafeteria with a stage at one end
- 1 Guidance Office
- 1 Health suite (nurse)
- 1 Kitchen
- 1 Teachers planning room
- ② Teachers dining room. *WHAT ABOUT CAFETERIA PLANNING?*
- + Misc. storage, mechanical, toilets etc....

#### Appendix E: Info on health and Safety Renovations

The health and Safety renovations \$428,408 contract included the following:

## **Pompo**

### Electrical upgrades

- Test/replace Federal Pacific breakers
- Install 100 amp feeder breakers
- Provide 28 quad outlets, feeds, etc
- Test existing 30kVA generator

### HVAC

- Air compressor overhaul
- Refurbish UV controls
- Calibrate air handling mixing dampers

Provide new LED exit signs

Patch asphalt at playground and parking area

## **Center School**

### Electrical upgrades

- Replace 600 amp panel
- Replace emergency generator
- Provide 36 quad outlets
- Provide code conforming fire alarm horn and strobes
- Replace fire alarm panel control batteries
- Replace fire alarm with addressable panel

### Plumbing Upgrades

- Replace 31 faucets and flushvalves
- Replace 4 lavatory sinks and 1 drinking fountain

### HVAC upgrades

- Replace 13 finned tube radiation 2-way control valves
- Replace 9 UV 2-way control valves
- Allowance for control system replacement
- UV control component replacements
- Refurbish internal UV components

Repair Intercom

Patch asphalt at turnabout

Repair roof drains

## **Appendix F: Info on School Building options reviewed to date**

The SBC has commissioned conceptual plans and cost estimates for the following:

**2002:**

- Renovations at Pompo and Center to bring the schools up to code
- A renovation/addition to both Pompo (pre-K to 2) and Center (3 to 5)
- A renovation/addition to Pompo (pre-K to 1) and also to Center (2 to 5)
- A new PreK-2 with renovation/addition to Center (3 to 5)
- A new single story pre-K to 5 school on the Center School site
- A new 2 story pre-K to 5 school on the Center School site
- A new 3 story school on the Center School site.

**2003:**

- Add Modular Classrooms (Temporary – short term only)
- Build Add-on Classrooms (Temporary – short term only)
- Addition w/ minimal renovation at both schools (not to SBAB standards)
- Addition w/ modest renovation to both schools (not to SBAB standards)
- Complete Add/Reno at both school to SBAB standards
- A new Pre-K to 2 on new site & Add/Reno Center
- A new Pre-K to 2 on new site & New 3-5 at Center
- A new Pre-K to 5 on new site

**2004**

- An add/reno to Future Electronics for a PreK-5
- An add/reno of Center for PreK- 5 at the Center site
- A new PreK-5 on the Center site
- A new PreK- 2 on Kane with an add/reno for grades 3-5 at the Center site
- A new preK-5 on the Kane property

**Appendix G: Info on Sites evaluated to date**

**2002:**

**Pompo:**

- Status: Town owned- could be used by town - deed requires a municipal use
- 19.2 Acres
- Approximately 10 Acres of useable acres due to wetlands
- Access off of 117
- Analysis: Site is not large enough for a PreK-1 at build-out
- SBC decided not to pursue any projects reusing Pompo as a school site

**Center:**

- Status: Town owned— could be used by town, leased, or sold
- 15 acres
- Approximately 11 useable acres due to wetlands
- Abuts Hale school property
- Access off of 117 and Hartley Rd
- Analysis: Site is not large enough for a PreK-5, but would be a good site for 3-5 school
- SBC decided not to pursue Center as a PreK-5 site

## 2004

### O'Grady:

- Status: Chapter 61 property offered to the town in 2004. The town did not pursue it.
- 63.5 acres
- 20 to 40 useable acres would make a good site for a school
- Good access off of Hudson Rd.
- Analysis: Site would be very appropriate for a PreK-5
- SBC recommended that the town buy the parcel as a site for a new school.
- The back portion of the parcel was offered at town meeting for \$800,000.

If the town did not purchase the full site the SBC recommended the purchase of the roughly 20 acres behind the AAN as a site for a new school. The town voted not to purchase any part of the property.

### Quirk

- Status: Privately owned with an owner who was interested in selling.
- 70 acres
- 15 Useable acres due to wetlands and topography
- Poor traffic access
- Analysis: The site is not appropriate for a school
- The SBC decided not to pursue the Quirk property as a school site

### Kane

- Privately owned – SBC obtained market value appraisal of \$3.1 million March 2004?
- 110 acres
- More than enough useable area for a school site- with some of the uplands at the end of Gates Lane unused and available for possible mixed use development

- Numerous areas of wetlands would make development expensive
- Adequate access off of 117
- Analysis: This site would be appropriate for a new school though the site development would be expensive (\$1-3 million more than a simpler site)
- SBC discussed the land with Mr. Kane and indicated our interest prior to the first RFP, however he chose not to offer it to the town. Mass General Laws mandate that there can be no further contact.

#### Future Electronics

- Privately owned- Currently on the market for \$17.5 million *RA*
- 72 acres with a 300,000 sq. ft. building
- Site is very limited by wetlands
- With existing building there is just enough space for the parking play areas etc for a PreK-5. This would preclude a mixed use scenario. Part of building could be demoed to add more parking. *? new use 72 acres*
- Cell tower on site
- Superfund hazardous waste site abuts existing playing field. *- ?*
- Analysis- While this site could house a PreK-5 school it would not lend itself to a mixed use development. Without another tenant the cost would be prohibitive.
- The SBC decided not to pursue Future Electronics as a school site. *BTS 5/25/20*

#### Center- further study

- The SBC commissioned further study of Center based on mapping wetland and using all available space.
- DPC presented two plans: a two story renovation/addition to Center for PreK-5 or a new two story PreK-5 set back on the site.
- Analysis: Even with the addition of approx ½ acre of uplands that was flagged, the site is not large enough for a PreK-5.
- SBC decided not to pursue Center as a PreK-5 site *— No BTS 5/25/20*

#### 2005

Cushing (Offered to town for \$1.7 million- bought by town for other purchases)

- 106 acres
- Very limited useable land due to steep slopes
- Very poor traffic access
- Analysis: The site would not be an appropriate location for a new school
- SBC decided not to pursue Cushing as a school site

Corzine (Offered to SBC at \$2.9 million including a finished access road)

- 22.3 Acres
- Very limited useable land without completely regarding the property (which would be very expensive)
- Poor traffic access
- Analysis: The site would not be a good location for a new school
- SBC decided to defer response to the owner until late Dec 2005 because this property is flawed as a school site and would cost much more to develop than Minuteman.

#### Center- further study

- The SBC commissioned further study of Center based on filling in as much wetlands as possible
- Analysis: The previous plan called for filling approx. 5000 sq ft of wetlands- which is the legal limit- so this made no change to the site analysis
- SBC decided not to pursue Center as a PreK-5 site

#### Minuteman

- Status: Chapter 61 property offered to the town in 2005 for \$4 million
- 104 acres
- Approx 40 useable acres in the meadow would allow a good site for a school
- Good access off of Boxborough Rd
- Site could be developed as a mixed use development to reduce the price for the school portion of the site
- Analysis: Site would be very appropriate for a PreK-5
- SBC has recommended Minuteman as a site for a new PreK-5 school.

#### Appendix H: Info on requirements for 2004 study for PreK-5 at Center. - Susan Reed

The following list of requirements was given to DPC as a basis for the PreK-5 scenario at Center

1. Addition and renovation to the existing Center School to include 37 classrooms and all related support spaces to accommodate the district's educational objectives.
2. Determine whether the site would provide sufficient room for expansion to accommodate expected enrollment growth beyond the ten-year projections.
3. Cost estimates for all site development, construction, and furnishings.

4. A preliminary traffic study has been completed. We presume that a more thorough analysis will be required at some point, but decided not to request additional studies until we know what the site will hold.
5. Making the maximum use of the existing structure, including the evaluation of the possible addition of a second story.
6. Use existing plumbing, electrical, and HVAC where possible.
7. Consider expanding play spaces into wooded area behind current play spaces if necessary (wetlands are currently being flagged so that we can see where these might go.)
8. Recommendations on the pros/cons of this add/reno vs. razing Center and building new on the same lot.
9. Incorporate land now occupied by fire station and the land behind the fire station
10. If the site seems large enough we will also determine the type and location of a waste management system as required by the Department of Environmental Protection, verify the presence of an adequate water supply, and verify that the location can handle the expected traffic

#### **Appendix I : Comparison of one school vs two schools**

##### **One School: A new PreK-5 on a new site**

###### **Pros:**

- It is the least expensive of our current options (excluding land cost)
- It has shorter total construction time (2 ½ years vs. up to 5 years).
- Minimizes disruption during construction as children and education will not be disturbed by phasing issues during construction.
- Allows for less staff and more efficient use of staff.
- Allows for more efficient delivery of services, lunches etc.
- Maintains integrity of Center School, the old stone building and blacksmith shop.
- Reduces maintenance and operating costs
- Can be sited to minimize traffic impact of expansion (traffic by library is already congested)
- Provides space to accommodate future population growth to build-out.
- Costs that would be associated with phasing and moving kids around necessary during a reno-addition project would be put to better use.
- Pompo can be used for other purpose(s)
- Center could be rented out for other uses but kept in hand for eventual use as a 5-6 school.

### Cons

- Does not keep an active school in Center at this time.
- School will be relatively large for an elementary school
- Requires more land (approximately 15 acres vs 20 acres)

### Two schools: A 3-5 at Center and a new PreK- 2 on a new site

### Pros

- Provides two smaller schools (ideal is consider around 500 students)
- Offers solution to near future overcrowding at Hale if it is designed to accommodate 6<sup>th</sup> grade classroom addition as Hale becomes overcrowded (perhaps avoiding another major construction project)
- Reuses town assets and keeps a school operating in the center of town and supports the campus concept
- The schools would be in scale with the town- rather than having an elementary school which is in the top 25% of the country in terms of size
- Having two schools would divide the traffic impact between two sites (and therefore be less likely to overwhelm a particular spot)
- Keeping a school at Center would provide additional parking for events at Hale (like town meeting)
- Well and septic might be able to be shared with Hale
- It would likely give PreK-5 a little more space (two gyms, two cafeterias)
- Keeping the 3-5 kids in the Center gives them the opportunity to walk to the library etc. (not likely to be used by PreK-2)
- Reduces the amount of land needed for a new site (by about 5 acres)
- Gives the option of providing two “neighborhood” PreK-5s rather than a PreK-2 and 3-5

### Cons

- Major disruption/dislocation for students/staff during construction- would likely have to phase project and move 3-5 into new building or Pompo during construction (2 school years).
- Cost of two projects higher than constructing one new building- would be at least \$1 million to possibly \$3 million or more depending on the site. (For the same money could get a bigger or higher quality single school. through savings by only having a single site – or could save the money.)
- Longer construction time than single school (especially if phased)
- Specialists would still need to split their time between two schools MW said that the district would prefer a PreK-5 because it offers simpler

administration and may offer benefits in terms of teacher communication and less transitions for the students

- Higher staffing costs than a single school.
- Higher operating and maintenance costs than one new school at new site.
- If the two schools are Prek-2 and 3-5, this creates disconnect and possible transition anxiety for students between grades 2 and 3 and allows fewer opportunities for teachers to communicate and learn from each other.

## **Appendix J : Highlights of the MSBA Legislation from the MA DOE website**

Chapters 201, 208 and 210 of the Acts of 2004 created the Massachusetts School Building Authority (MSBA) and changed the school building assistance program in substantial ways. The following is a summary of some major programmatic changes contained in that legislation.

### **Creation of the Massachusetts School Building Authority**

- The MSBA is an independent public authority chaired by Timothy Cahill, State Treasurer.
- Additional members of the MSBA are David Driscoll, Commissioner of Education, Timothy Murphy, designee of the Secretary of Administration and Finance, Richard Bertman, Founding Principal, CBT Architects, Terry Kwan, former teacher and Brookline School Committee member, Mary Grassa O'Neill, Director, the Principal's Center at the Harvard Graduate School of Education, Lisa Turnbaugh, Construction Management Leader, DMJM Harris.
- The creation of the MSBA was determined to be in the best interests of the commonwealth and its citizens to achieve the objectives of effective management and planning of the Commonwealth's investments in school building assets, promoting positive educational outcomes, ensuring the health, safety, security and well-being of students, easing and preventing overcrowding, maintaining good repair, efficient and economical construction and maintenance, financial sustainability of the school building assistance program, thoughtful community development, smart growth and accessibility.

### **Creation of the School Modernization and Reconstruction Trust Fund (SMART Fund)**

- Revenues to the SMART Fund include a dedication of 20 per cent of the Commonwealth sales and use tax.
- The cities, towns and regional school districts are the legal beneficiaries of the sales tax redirection to the SMART Fund.
- There are established guaranteed minimum amounts of sales tax dedicated to the SMART Fund of \$395M in FY2005, \$488M in FY2006, \$557M in FY2007, \$634M in FY2008.
- Full 20 per cent dedication of the sales and use tax will be fully phased-in by 2011.

### **Creation of an Advisory Board**

- The advisory board was created to assist the MSBA in the development of general policy regarding school building construction, renovation, reconstruction, maintenance and facility space, preservation of open space, thoughtful community development, cost management and to provide technical advice and input.
- The advisory board consists of the following 17 members: the State Auditor, the Inspector General, the Executive Director of the MSBA (non-voting), a member of the Massachusetts Municipal Association, the Massachusetts Municipal Association, the Massachusetts Association of School Committees, the Massachusetts Mayors Association, the Massachusetts Association of School Superintendents, the Massachusetts Association of Regional Schools, the Massachusetts Building Trades Council, the Massachusetts chapter of the Associated Builders and Contractors, the Massachusetts Alliance of Small Contractors, the American Council of Engineering Companies of Massachusetts, the Associated Subcontractors of Massachusetts, the American Institute of Architects- Massachusetts, the Massachusetts Smart Growth Alliance, the Massachusetts Taxpayers Foundation, Associated General Contractors of Massachusetts and acting jointly, the Massachusetts Teachers Association and Massachusetts Federation of Teachers.

#### **Grant Applications**

- The MSBA will review, approve or deny grant applications, waivers and other requests submitted to the MSBA.
- The MSBA will also review, approve and recommend changes to grant payment schedules or suspend said schedules for program projects such as refinancing, audit findings and such other circumstances that may warrant such action.
- Any eligible applicant (city, town, regional school district or independent agricultural and technical school) may apply for a grant on a new project after the moratorium ends July 1, 2007.
- After the moratorium ends on July 1, 2007, applicants that begin construction before approval for a project is obtained from the MSBA, shall remain subject to the MSBA's approval process as if the construction were not undertaken.
- The criteria for approving a grant application for a school project include:
  - The school project is in the best interests of the commonwealth.
  - The school project is in the best interest of the eligible applicant, with respect to its site, type of construction, sufficiency of accommodations, open space preservation, urban development, urban sprawl, energy efficiency, and otherwise.
  - The school project is necessary to meet educational standards of the curriculum frameworks established by the board of education.
  - The school project has a value over its useful life commensurate with the lifecycle cost of building, operating, and maintaining the project.
  - The school project is not at a school that has been the site of an approved school project pursuant to this chapter or to chapter 645 of the acts of 1948 within the 10 years prior to the project application date.
  - The school project is within the capacity of the MSBA to finance within revenues projected to be available to the trust, established pursuant to section 35BB of chapter 10.

- The Commissioner of Education has certified that adequate provisions have been made in the school project for children with disabilities.
- The Commissioner of Education has certified that, in the case of elementary facilities, that adequate provisions consistent with local policy have been made for all-day kindergarten, pre-kindergarten classes and for extended day programs.
- The MSBA shall also consider the availability of funds projected in the SMART Fund and other financial obligations of the MSBA, the MSBA's long term capital plan, and the results of needs surveys.

#### **Priority System**

The MSBA is required to develop a project priority system that includes the following criteria:

- Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of school children, where no alternative exists.
- Elimination of existing severe overcrowding.
- Prevention of the loss of accreditation.
- Prevention of severe overcrowding expected to result from increased enrollments which must be substantiated.
- Replacement, renovation or modernization of the heating system in any schoolhouse to increase energy conservation.
- Short term enrollment growth.
- Replacement of or addition to obsolete buildings in order to provide for a full range of programs consistent with state and approved local requirements.
- Transition from court-ordered and Board of Education approved racial balance school districts to walk-to, so-called, or other school districts.

#### **Enrollment Projection Model**

The MSBA is required to develop a formal enrollment projection model.

#### **Facilities Assessment**

The MSBA is required to:

- Collect and maintain data on all the public school facilities in the commonwealth, including information on size, usage, enrollment, available facility space and maintenance.
- Create a maintenance assessment program for school buildings.
- Use such assessment program to issue ratings of the building conditions for each school district.

#### **Needs Survey**

The MSBA is required to perform a needs survey to ascertain the capital construction, reconstruction, maintenance and other capital needs for schools in the Commonwealth.

#### **Maintenance Requirement**

For all projects which received first school building assistance payments after July 1, 2000, the MSBA is prohibited from approving a grant application for any school district which does not spend in the year preceding application at least 50 percent of the sum of said school districts calculated foundation budget amounts for the purposes of foundation utility and ordinary maintenance expenses.

#### **Clearing House for Best Practices**

The MSBA will become a resource for local communities by providing the following:

- Architectural or other technical advice and assistance.
- Training and education, to cities and towns or to joint committees thereof and to general contractors, subcontractors, construction or project managers, designers and others in the planning, maintenance and establishment of school facility space.
- Collection and maintenance of a clearinghouse of prototypical school plans which may be consulted by eligible applicants.

#### **Project Managers and Contract Forms**

- The MSBA is required to approve the forms used by eligible applicants to enter into contracts for architectural, engineering and other services.
- The MSBA is required to approve project managers.

#### **Moratorium**

No applications for school building projects can be accepted until after July 1, 2007.

#### **Live within the Revenue Stream Provided by the Dedication of the Sales Tax**

- The MSBA is required to approval only those projects which can be funded within the revenue available from the dedication to the SMART Fund of the 20 per cent of the sales tax.
- The MSBA will develop a long-term capital plan.
- Beginning on July 1, 2007, the amount of grants approved during the fiscal year is capped at \$500M. This cap grows by a factor of 4.5 percent every year thereafter.
- As of July 1, 2007, there no longer will be a wait list.
- If a project application is not approved solely for lack of available funding in a given fiscal year, an eligible applicant may request that their application be carried forward and reviewed in the following fiscal year. However, in said review, the project shall be in the general pool of all applicants from that year and will be ranked and evaluated using the standard priority system.

#### **Determine Eligibility of Cost Components for Projects**

- The MSBA is required to issue annually the maximum eligible cost standards and size standards for school projects and shall be in conformity with the minimum requirements of state law and shall also reflect consideration of cost effects, prevailing educational standards in the Commonwealth and the needs of efficient and creative school projects.
- The cost standards shall be based on the price experience of recently completed and recently bid school projects, taking into account the cost effectiveness of design, construction and programming techniques utilized in such school projects.